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TO: Ben Sackey **Location: rem/5B31/5C18** **Art Unit: 1624** **Thursday, March 29, 2007** **Case Serial Number: 10/717846**	**From: Les Henderson** **Location: Biotech-Chem Library** **REM-1B61** **Phone: (571)272-2538** **leslie.henderson@uspto.gov**

Search Notes

Results can also be viewed via SCORE or eDAN.

http://es/ScoreAccessWeb/

To access your search results for SN 10/717846 via eDAN.

In eDAN:

Enter Application number
Click on Supplemental Content Tab ->
Sequence results are under the **Search Results** (click on version listed)
All other results are under **Other Content** (click on version listed)

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Biotech-Chem Library

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Mary Hale, Information Branch Supervisor
571-272-2507 Remsen 1 A51

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 1610*
- *Relevant prior art **found**, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
  (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art **not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to STIC/Biotech-Chem Library, Remsen Bldg.

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Scientific and Technical Information Center

SEARCH REQUEST FORM

Requester's Full Name: BEN SACKEY Examiner #: 13489 Date: 3/23/07
Art Unit: 1624 Phone Number: 2-0704 Serial Number: 10/717,846
Location (Bldg/Room#): REM 5B31 (Mailbox #): 5C18 Results Format Preferred (circle): PAPER DISK

****

To ensure an efficient and quality search, please attach a copy of the cover sheet, claims, and abstract or fill out the following: MG

Title of Invention: Catalyst for the manufacture of acrylonitrile

Inventors (please provide full names): Christos Paparizos

Earliest Priority Date: 12/02/02

Search Topic:
Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc., if known.

For Sequence Searches Only ***Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.***

A catalyst composition comprising a complex of catalytic oxides comprising potassium, cesium, cerium, chromium, cobalt, nickel, iron, bismuth and molybdenum, wherein the relative ratios of these elements are represented by formula

$A_a K_b Cs_c Ce_d Cr_e Co_f Ni_g X_h Fe_i Bi_j Mo_{12} O_x$

wherein A is Rb, Na, Li, Tl or mixtures thereof; and a method of preparing acrylonitrile using the said catalyst composition.

10/717,846

The claimed invention is:

1. A catalyst composition comprising a complex of catalytic oxides comprising potassium, cesium, cerium, chromium, cobalt, nickel, iron, bismuth, and molybdenum, wherein the relative ratios of these elements are represented by the following general formula

$$A_a K_b Cs_c Ce_d Cr_e Co_f Ni_g X_h Fe_i Bi_j Mo_{12} O_x$$

wherein A is Rb, Na, Li, Tl, or mixtures thereof,

X is P, Sb, Te, B, Ge, W, Ca, Mg, a rare earth element, or mixtures thereof,

a is about 0 to about 1,

b is about 0.01 to about 1,

c is about 0.01 to about 1,

d is about 0.01 to about 3,

e is about 0.01 to about 2,

f is about 0.01 to about 10,

g is about 0.1 to about 10,

h is about 0 to about 4,

i is about 0.1 to about 4,

j is about 0.05 to about 4,

x is a number determined by the valence requirements of the other elements present,

and wherein the catalyst is substantially free of manganese and zinc.

2. The catalyst composition of claim 1, wherein the catalyst comprises phosphorus.

3. The catalyst composition of claim 1, wherein the catalyst comprises magnesium.

4. The catalyst composition of claim 1, wherein the catalyst is substantially free of magnesium.

5. The catalyst composition of claim 1, wherein the catalyst comprises rubidium.

6. The catalyst composition of claim 1, wherein the catalyst comprises lithium.

7. The catalyst composition of claim 1, wherein f + g is about 4 to about 10.

8. The catalyst composition of claim 1, wherein the catalyst composition comprises a support selected from the group consisting of silica, alumina, zirconium, titania, or mixtures thereof.

9. The catalyst composition of claim 8, wherein the support comprises between 30 and 70 weight percent of the catalyst.

10. The catalyst composition of claim 1, wherein the catalyst composition comprises silica having an average colloidal particle size in between about 8 nm and about 100 nm.

11. A catalyst composition comprising a complex of catalytic oxides comprising potassium, cesium, cerium, chromium, cobalt, nickel, iron, bismuth, and molybdenum, wherein the relative ratios of these elements are represented by the following general formula

$$A_a\ Li_{a'}\ K_b\ Cs_c\ Ce_d\ Cr_e\ Co_f\ Ni_g\ X_h\ Fe_i\ Bi_j\ Mo_{12}\ O_x$$

wherein A is Rb, Na, Tl, or mixtures thereof,

X is P, Sb, Te, B, Ge, W, Ca, Mg, a rare earth element, or mixtures thereof,

a is about 0 to about 1,

a′ is about 0.01 to about 1,

b is about 0.01 to about 1,

c is about 0.01 to about 1,

d is about 0.01 to about 3,

e is about 0.01 to about 2,

f is about 0.01 to about 10,

g is about 0.1 to about 10,

h is about 0 to about 4,

i is about 0.1 to about 4,

j is about 0.05 to about 4,

x is a number determined by the valence requirements of the other elements present,

and wherein the catalyst is substantially free of manganese and zinc.

12. The catalyst composition of claim 11, wherein f + g is about 4 to about 10.

13. A process for the conversion of an olefin selected from the group consisting of propylene, isobutylene or mixtures thereof, to acrylonitrile, methacrylonitrile, and mixtures thereof, respectively, by reacting in the vapor phase at an elevated temperature and pressure said olefin with a molecular oxygen containing gas and ammonia in the presence of a catalyst comprising a complex of catalytic oxides comprising potassium, cesium, cerium, chromium,

cobalt, nickel, iron, bismuth, molybdenum, wherein the relative ratios of these elements are represented by the following general formula

$$A_a K_b Cs_c Ce_d Cr_e Co_f Ni_g X_h Fe_i Bi_j Mo_{12} O_x$$

wherein A is Rb, Na, Li, Tl, or mixtures thereof,

X is P, Sb, Te, B, Ge, W, Ca, Mg, a rare earth element, or mixtures thereof,

a is about 0 to about 1,

b is about 0.01 to about 1,

c is about 0.01 to about 1,

d is about 0.01 to about 3,

e is about 0.01 to about 2,

f is about 0.01 to about 10,

g is about 0.1 to about 10,

h is about 0 to about 4,

i is about 0.1 to about 4,

j is about 0.05 to about 4,

x is a number determined by the valence requirements of the other elements present,

and wherein the catalyst is substantially free of manganese and zinc.

14. The process of claim 13, wherein the catalyst comprises phosphorus.

15. The process of claim 13, wherein the catalyst comprises magnesium.

16. The process of claim 13, wherein the catalyst comprises rubidium.

17. The process of claim 13, wherein the catalyst comprises lithium.

18. The catalyst composition of claim 13, wherein f + g is about 4 to about 10.

19. The process of claim 13, wherein the catalyst composition comprises a support selected from the group consisting of silica, alumina, zirconium, titania, or mixtures thereof.

20. The process of claim 19, wherein the support comprises between 30 and 70 weight percent of the catalyst.

21. The process of claim 13, wherein the catalyst composition comprises silica having an average colloidal particle size in between about 8 nm and about 100 nm.

INVENTOR SEARCH

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=> d his l60

     (FILE 'HCAPLUS' ENTERED AT 11:58:44 ON 28 MAR 2007)
L60          24 S L59 AND L50

=> d que l60
L10              QUE  ABB=ON  PLU=ON  JEVNE S?/AU
L11              QUE  ABB=ON  PLU=ON  SEELY M?/AU
L12              QUE  ABB=ON  PLU=ON  "STANDARD OIL CO?"/PA,CS,SO,CO
L13              QUE  ABB=ON  PLU=ON  "INNOVENE USA?"/PA,CS,SO,CO
L14              QUE  ABB=ON  PLU=ON  PAPARIZOS C?/AU
L16              QUE  ABB=ON  PLU=ON  (L10 OR L11) OR L14
L22           45 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 AND ((L12 OR
                 L13))
L23       635119 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CATALYSTS+PFT,OLD,NT/C
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L26            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  107-13-1/RN
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L28           14 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L24 AND L27
L46        29606 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ACRYLONITRILE+PFT,OLD,
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                 MY<2003 OR REVIEW/DT
L58           23 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 AND L23 AND L46
L59           24 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L28 OR L58
L60           24 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L59 AND L50


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L62           27 S L61 AND L50

=> d que l62
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L11              QUE  ABB=ON  PLU=ON  SEELY M?/AU
L14              QUE  ABB=ON  PLU=ON  PAPARIZOS C?/AU
L15              QUE  ABB=ON  PLU=ON  L10 AND L11 AND L14
L16              QUE  ABB=ON  PLU=ON  (L10 OR L11) OR L14
L50              QUE  ABB=ON  PLU=ON  PY<2003 OR PRY<2003 OR AY<2003 OR
                 MY<2003 OR REVIEW/DT
L52            2 SEA L15
L54           72 SEA L16
L55           63 SEA L54 AND (CAT OR CATAL?)
L57           28 SEA L55 AND (?NITRIL? OR ACRYLON?)
L61           28 SEA L57 OR L52
L62           27 SEA L61 AND L50


=> dup rem l60 l62
FILE 'HCAPLUS' ENTERED AT 12:40:15 ON 28 MAR 2007
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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FILE 'WPIX' ENTERED AT 12:40:15 ON 28 MAR 2007
COPYRIGHT (C) 2007 THE THOMSON CORPORATION
PROCESSING COMPLETED FOR L60
PROCESSING COMPLETED FOR L62
L68           32 DUP REM L60 L62 (19 DUPLICATES REMOVED)
                 ANSWERS '1-24' FROM FILE HCAPLUS
                 ANSWERS '25-32' FROM FILE WPIX
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=> d l68 1-32 ibib ab

L68 ANSWER 1 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 1
ACCESSION NUMBER: 2004:473398 HCAPLUS Full-text
DOCUMENT NUMBER: 141:24128
TITLE: Ammoxidation catalysts for the manufacture of acrylonitrile from propylene
INVENTOR(S): **Paparizos, Christos; Jevne, Stephen C.; Seely, Michael J.**
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 7 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004110978	A1	20040610	US 2003-717846	2003 1119
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CA 2507182	A1	20040617	CA 2003-2507182	2003 1119
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WO 2004050240	A1	20040617	WO 2003-US36937	2003 1119
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RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003295643	A1	20040623	AU 2003-295643	2003 1119
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EP 1567263	A1	20050831	EP 2003-786844	2003 1119
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BR 2003016852	A	20051018	BR 2003-16852	2003 1119
			<--	
CN 1720099	A	20060111	CN 2003-80104882	2003 1119
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JP 2006507936	T	20060309	JP 2004-557222	2003

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IN 2005MN00669	A	20050930	IN 2005-MN669	
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PRIORITY APPLN. INFO.:			US 2002-430162P	P
				2002
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			US 2003-717846	A
				2003
				1119
			WO 2003-US36937	W
				2003
				1119

AB A catalyst comprising a complex of catalytic oxides comprising potassium, cesium, cerium, chromium, cobalt, nickel, iron, bismuth, molybdenum, wherein the relative ratios of these elements is AaKbCscCedCreCofNigXhFeiBijMo12Ox (A = Rb, Na, Li, Tl; X = P, Sb, Te, B, Ge, W, Ca, Mg, a rare earth element;, a = 0-1; b = 0.01-1; c = 0.01-1; d = 0.01-3; e = 0.01-2; f = 0.01-10; g = 0.1-10; h = 0-4; i = 0.1-4; j = 0.05-4; x = number determined by the valence requirements of the other elements present) which is substantially free of manganese and zinc, is used for the conversion of propylene into acrylonitrile.

L68 ANSWER 2 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 2
ACCESSION NUMBER: 2004:451677 HCAPLUS Full-text
DOCUMENT NUMBER: 141:7648
TITLE: Ammoxidation catalyst for acrylonitrile manufacture
INVENTOR(S): **Paparizos, Christos; Jevne, Stephen C.; Seely, Michael J.**
PATENT ASSIGNEE(S): The Standard Oil Company, USA
SOURCE: U.S. Pat. Appl. Publ., 9 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004106817	A1	20040603	US 2003-717130	
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US 7071140	B2	20060704		
CA 2507181	A1	20040617	CA 2003-2507181	
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WO 2004050238	A1	20040617	WO 2003-US36940	
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RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW,

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AU 2003291572	A1	20040623	AU 2003-291572	2003 1119 <--
BR 2003016851	A	20051018	BR 2003-16851	2003 1119 <--
EP 1590083	A1	20051102	EP 2003-768979	2003 1119 <--
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CN 1723083	A	20060118	CN 2003-80104883	2003 1119 <--
JP 2006507937	T	20060309	JP 2004-557223	2003 1119 <--
IN 2005MN00672	A	20050930	IN 2005-MN672	2005 0627 <--
PRIORITY APPLN. INFO.:			US 2002-430163P P	2002 1202 <--
			US 2003-717130 A	2003 1118
			WO 2003-US36940 W	2003 1119

AB The present invention relates to a catalyst comprising a complex of catalytic oxides comprising rubidium, cerium, chromium, iron, bismuth, molybdenum, and ≥1 of nickel or nickel and cobalt, optionally magnesium, and optionally one of phosphorus, antimony, tellurium, sodium, lithium, potassium, cesium, thallium, boron, germanium, tungsten calcium, wherein the relative ratios of these elements are represented by RbaCebCrcMgdAeFefBigYhMo12Ox, wherein A = Ni or the combination of Ni and Co; Y = ≥1 of P, Sb, Te, Li, Na, K, Cs, Tl, B, Ge, W, Ca, Zn, a rare earth element, or mixts. thereof; a = 0.01-1; b = 0.01-3; c = 0.01-2; d = 0-7; e = 0.01-10; f = 0.01-4; g = 0.05-4; h = 0-3; x = a number determined by the valence requirements of the other elements present, wherein b + c ≥ g and wherein the catalyst is substantially free of manganese, a noble metal and vanadium. The catalyst is useful in processes for the ammoxidn. of an olefin selected from the group consisting of propylene, isobutylene or mixts. thereof, to acrylonitrile, methacrylonitrile and mixts. thereof, resp. Thus, ferric nitrate nonahydrate 69.752, nickel nitrate hexahydrate 139.458, magnesium nitrate hexahydrate 49.186, bismuth nitrate pentahydrate 20.937, rubidium nitrate 2.122, and 50% cesium hexanitrate diammonium 94.654 g were melted at 70°, ammonium heptamolybdate 203.219, chromium trioxide 0.959, and 28.75% silica sol 871.08 g were mixed and combined with the metal nitrate melt, dried, denitrified at 290° for 3 h and 425° for 3 h, and calcined at 570° for 3 h to give a catalyst, propylene and the resulting catalyst were fed into a reactor (propylene/catalyst = 0.06/h) and reacted at 430° to give acrylonitrile, showing conversion 80.0% and selectivity to acrylonitrile 81.0.

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE

FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 3 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 3
ACCESSION NUMBER: 2003:931316 HCAPLUS Full-text
DOCUMENT NUMBER: 139:396288
TITLE: Ammoxidation of carboxylic acids into a mixture of saturated and unsaturated nitriles
INVENTOR(S): Godbole, Sanjay P.; **Paparizos, Christos; Seely, Michael J.**
PATENT ASSIGNEE(S): The Standard Oil Company, USA
SOURCE: PCT Int. Appl., 15 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003097583	A1	20031127	WO 2003-US15983	2003 0516
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RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003219372	A1	20031127	US 2003-438586	2003 0515
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US 6982342	B2	20060103		
AU 2003233620	A1	20031202	AU 2003-233620	2003 0516
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EP 1503982	A1	20050209	EP 2003-729057	2003 0516
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BR 2003009879	A	20050301	BR 2003-9879	2003 0516
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JP 2005526135	T	20050902	JP 2004-505316	2003 0516
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CN 1701060	A	20051123	CN 2003-811150	2003 0516
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PRIORITY APPLN. INFO.:			US 2002-381066P	P 2002

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WO 2003-US15983 W
2003
0516

AB A process for increasing the yield of acetonitrile produced during the manufacture of acrylonitrile, comprises introducing a hydrocarbon selected from propylene and propane, a carboxylic acid, ammonia, and an O2-containing gas into a reaction zone containing an ammoxidn. catalyst (e.g., BiFeMoOx), reacting the hydrocarbon, carboxylic acid, ammonia and oxygen over said catalyst at an elevated temperature to produce acrylonitrile, hydrogen cyanide and acetonitrile, and recovering the acrylonitrile, hydrogen cyanide and acetonitrile from the reactor.
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 4 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 4
ACCESSION NUMBER: 2002:142588 HCAPLUS Full-text
DOCUMENT NUMBER: 136:184267
TITLE: Improved catalysts for the manufacture of acrylonitrile
INVENTOR(S): **Paparizos, Christos; Seely, Michael J.**; Friedrich, Maria Strada; Suresh, Dev D.
PATENT ASSIGNEE(S): The Standard Oil Company, USA
SOURCE: PCT Int. Appl., 11 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002013963	A2	20020221	WO 2001-US124253	2001 0802
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WO 2002013963	A3	20020502		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 6458742	B1	20021001	US 2000-641380	2000 0817
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CA 2417987	A1	20020221	CA 2001-2417987	2001 0802
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AU 200178136	A	20020225	AU 2001-78136	2001 0802
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EP 1309402	A2	20030514	EP 2001-956103	2001 0802
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
BR 2001013310	A	20030624	BR 2001-13310	2001 0802 <--
JP 2004505766	T	20040226	JP 2002-519095	2001 0802 <--
RU 2266784	C2	20051227	RU 2003-107043	2001 0802 <--
US 2002198398	A1	20021226	US 2002-213755	2002 0806 <--
US 6965046	B2	20051115		
BG 107525	A	20031231	BG 2003-107525	2003 0205 <--
ZA 2003001006	A	20040213	ZA 2003-1006	2003 0205 <--
PRIORITY APPLN. INFO.:			US 2000-641380 A	2000 0817 <--
			WO 2001-US24253 W	2001 0802 <--

AB A catalyst composition comprising a complex of catalytic oxides of iron, bismuth, molybdenum, cobalt, cerium, antimony, at least one of nickel or magnesium, and at least one of lithium, sodium, potassium, rubidium, or thallium, and characterized by the following empirical formula: AaBbCcFedBieCofCegSbhMomOx wherein A is least one of Cr, P, Sn, Te, B, Ge, Zn, In, Mn, Ca, W, or mixts. thereof, B is ≥1 of Li, Na, K, Rb, Cs, Tl, or mixts. thereof, C is least one of Ni, Mg or mixts. thereof, a = 0-4.0, b = 0.01-1.5, c = 1.0-10.0, d = 0.1-5.0, e = 0.1-2.0, f = 0.1-10.0, g = 0.1-2.0, h = 0.1-2.0, m = 12.0-18.0, and x = a number determined by the valence requirements of the other elements present. The catalyst is useful in processes for the ammoxidn. of an olefin selected from the group consisting of propylene, isobutylene or mixts. thereof, to acrylonitrile, methacrylonitrile and mixts. thereof, resp. Thus, 196.49 g ammonium heptamolybdate in 400 mL water, 625 g silica sol (40% SiO2), and a 50% solution of Sb2O3 5.96, Fe(NO3)3-9H2O 66.12, Ni(NO3)2-6H2O 71.39, Co(No3)2-6H2O 83.36, Mg(NO3)2-6H2O 41.96, Bi(NO3)3-5H2O 19.85, KNO3 1.66, and Ce(NH4)2(NO3)6-6H2O 89.73 g were blended to give 479 g catalyst and heated at 290° for 3 h, at 425° for 3 h , and at 600° for 3 h to give a finished catalyst K0.2Ni3.0Mg2.0Fe2.0Bi0.5Co3.5Ce1.0Sb0.5Mo13.6Ox having conversion of propylene to all products 98.0% and conversion propylene to acrylonitrile 79.8%.

L68 ANSWER 5 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 5
ACCESSION NUMBER: 2001:195219 HCAPLUS Full-text
DOCUMENT NUMBER: 134:223141
TITLE: Ammoxidation process for increasing the yield of hydrogen cyanide and acetonitrile produced during the manufacture of acrylonitrile
INVENTOR(S): Godbole, Sanjay P.; **Seely, Michael J.** ; Suresh, Dev D.
PATENT ASSIGNEE(S): The Standard Oil Company, USA
SOURCE: U.S., 5 pp., Cont.-in-part of U.S. Ser. No. 208,053, abandoned.

CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6204407	B1	20010320	US 2000-517404 <--	2000 0302
TW 565547	B	20031211	TW 2001-90106356 <--	2001 0319
PRIORITY APPLN. INFO.:			US 1998-208053 B2 <--	1998 1209
			US 2000-517404 A <--	2000 0302

AB A process for increasing the yield of one or both co-products HCN and MeCN produced during the manufacture of acrylonitrile comprises introducing a hydrocarbon selected from propylene and propane, a mixture comprising one or more alcs. selected from crude methanol, crude ethanol or crude propanol, ammonia and air into a reaction zone containing an ammoxidn. catalyst, reacting the hydrocarbon, alc., ammonia and oxygen over said catalyst at an elevated temperature to produce acrylonitrile, hydrogen cyanide and acetonitrile, and recovering the acrylonitrile, hydrogen cyanide and acetonitrile from the reactor.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 6 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 6
ACCESSION NUMBER: 1999:147352 HCAPLUS Full-text
DOCUMENT NUMBER: 130:184450
TITLE: Regeneration of used molybdenum-based catalysts by addition of ammonium dimolybdate
INVENTOR(S): Suresh, Dev Dhanaraj; **Paparizos, Christos; Seely, Michael J.;** Drenski, Tama Lee; Friedrich, Maria Strada
PATENT ASSIGNEE(S): The Standard Oil Company, USA
SOURCE: U.S., 3 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5877108	A	19990302	US 1997-988589 <--	1997 1205
ZA 9810494	A	19990524	ZA 1998-10494 <--	1998 1117
EP 922492	A1	19990616	EP 1998-309585	1998 1124

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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

MX 9810186	A	20000131	MX 1998-10186	1998 1203
				<--
CN 1226461	A	19990825	CN 1998-126363	1998 1204
				<--
BR 9805660	A	20000411	BR 1998-5660	1998 1204
				<--
JP 11235526	A	19990831	JP 1998-347464	1998 1207
				<--
TW 412446	B	20001121	TW 1998-87120171	1999 0113
				<--
PRIORITY APPLN. INFO.:			US 1997-988589 A	1997 1205
				<--

AB A process for regenerating molybdenum-containing ammoxidn. catalyst includes replacing the molybdenum loss from the catalyst during the ammoxidn. reaction wherein ammonium dimolybdenum is utilized as the source for replacement of the molybdenum loss from the original catalyst.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 7 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 7
ACCESSION NUMBER: 1998:774201 HCAPLUS Full-text
DOCUMENT NUMBER: 130:25443
TITLE: Catalyst for the manufacture of acrylonitrile and hydrogen cyanide
INVENTOR(S): Suresh, Dev Dhanaraj; **Paparizos, Christos; Seely, Michael J.**; Friedrich, Maria Strada; Drenski, Tama Lee
PATENT ASSIGNEE(S): The Standard Oil Company, USA
SOURCE: U.S., 4 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5840648	A	19981124	US 1997-923878	1997 0902
				<--
ZA 9807256	A	19990215	ZA 1998-7256	1998 0813
				<--
EP 900592	A1	19990310	EP 1998-306542	1998 0817
				<--

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,

MC, PT, IE, SI, LT, LV, FI, RO

EP 1321188	A1	20030625	EP 2003-75784	1998 0817 <--
R: DE, ES, GB, IT, NL				
BR 9806573	A	20000509	BR 1998-6573	1998 0828 <--
RO 115333	B1	20000128	RO 1998-1345	1998 0831 <--
CN 1223903	A	19990728	CN 1998-117923	1998 0901 <--
CN 1131725	B	20031224		
RU 2217232	C2	20031127	RU 1998-117081	1998 0901 <--
BG 64461	B1	20050331	BG 1998-102741	1998 0901 <--
JP 11169715	A	19990629	JP 1998-248798	1998 0902 <--
TW 470666	B	20020101	TW 1998-87114484	1998 1110 <--
IN 2005DE00922	A	20061201	IN 2005-DE922	2005 0412 <--
PRIORITY APPLN. INFO.:			US 1997-923878 A	1997 0902 <--
			EP 1998-306542 A3	1998 0817 <--

AB The title catalyst composition comprises a complex of catalytic oxides of iron, bismuth, molybdenum and calcium and characterized by the formula: AaBbCcDdFeeBifM012Ox where A=one or more of Li, Na, K, Rb and Cs or mixts. thereof B=one or more of Mg, Mn, Ni, Co, Ag, Pb, Re, Cd and Zn or mixts. thereof C=one or more of Ce, Cr, Al, Sb, P, Ge, La, Sn, V and W or mixts. thereof D=one or more of Ca, Sr, Ba or mixts. thereof and a=0.01 to 1.0; b and e=1.0-10; c, d, and f=0.1 to 5.0 and x is a number determined by the valence requirements of the other elements present.

REFERENCE COUNT: 67 THERE ARE 67 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 8 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 8

ACCESSION NUMBER: 1998:668001 HCAPLUS Full-text

DOCUMENT NUMBER: 129:302946

TITLE: Method of improving the attrition resistance of vanadium/antimony oxide based catalyst

INVENTOR(S): **Seely, Michael J.**; Friedrich, Maria Strada; Suresh, Dev Dhanaraj; Kocjancic, Frank John

PATENT ASSIGNEE(S): The Standard Oil Co., USA

SOURCE: U.S., 4 pp., Cont.-in-part of U.S. Ser. No. 574,055, abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5821192	A	19981013	US 1996-717074	1996 0923

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PRIORITY APPLN. INFO.: US 1996-574055 B2 1996 1218

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AB A process for preparing a catalyst VaSbbMcOx, wherein M = Sn, Ti, Li, Na, K, Mo, W, Fe, Cr, Co, Cu, Ga, Nb, Ta, Te, Bi, or mixts. thereof, a = 0.1-5, preferably 0.1-3, most preferably 0.1-2, b = 0.1-5, preferably 0.1-3, most preferably 0.1-2, c = 0.0-5, preferably >0 to 5, most preferably 0.01-3, and x is a number sufficient to satisfy the valency requirements of the elements, comprises forming an aqueous slurry comprising V and Sb, adding a peptizing agent (NH3, amines, etc.) free of any Li compds. capable of providing hydroxide ions to the slurry and spray drying the slurry to form an attrition resistant catalyst. Thus, a V1Sb1.5Sn0.205.15 catalyst was prepared and used in ammoxidn. reaction for manufacture of acrylonitrile.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 9 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 9
ACCESSION NUMBER: 1998:427812 HCAPLUS Full-text
DOCUMENT NUMBER: 129:109400
TITLE: Ammoxidation catalysts containing germanium to produce high yields of **acrylonitrile**
INVENTOR(S): Drenski, Tama Lee; Friedrich, Maria Strada; **Paparizos, Christos; Seely, Michael J.**; Suresh, Dev Dhanaraj
PATENT ASSIGNEE(S): **Standard Oil Co., USA**
SOURCE: U.S., 4 pp., Cont.-in-part of U.S. Ser. No. 461,996, abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5770757	A	19980623	US 1996-646742	1996 0503

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PRIORITY APPLN. INFO.: US 1995-461996 B2 1995 0605

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AB The catalyst has the atomic ratios set forth in the empirical formula: AaBbCcGedBieMo12Ox (A = ≥2 of alkali metals, In, Tl; B = Mg, Mn, Ni, Co, Ca, Fe, Ce, Sm, Cr, Sb, W, preferably B equals the combination of Fe and ≥1 element selected from the group consisting of Ni and Co and ≥1 element selected from the group consisting of Mg, Mn, Ca, Ce, Sn, Cr, Sb, and W; C = Pb, Eu, B, Sn, Te, Cu; a = 0.05-5.0; b = 5-12; c = 0-5.0; d = 0.1-2.0; e = 0.1-2.0; x = the number of oxygen atoms required to satisfy

the valency requirements of the other elements; b > a + c). Thus, ammoxidn. of propylene using a silica-supported catalyst containing Cs0.1K0.1Ni6.2Mg2.5Fe2Bi0.5Ce0.5Mo13.6Ge0.5Ox gave 84.4% **acrylonitrile**.

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 10 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 10
ACCESSION NUMBER: 1997:752727 HCAPLUS Full-text
DOCUMENT NUMBER: 128:24259
TITLE: Ammoxidation catalysts containing germanium to produce high yields of **acrylonitrile**
INVENTOR(S): Drenski, Tama Lee; Friedrich, Maria Strada; **Paparizos, Christos; Seely, Michael J.**; Suresh, Dev Dhanaraj
PATENT ASSIGNEE(S): **Standard Oil Co., USA**
SOURCE: U.S., 4 pp., Cont.-in-part of U.S. Ser. No. 432,329.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5688739	A	19971118	US 1996-642707	19960503
PRIORITY APPLN. INFO.:			US 1995-432329 A2	19950501

AB The catalyst has the atomic ratios set forth in the empirical formula AaBbCcGedBieMo12Ox, where A = ≥2 alkali metals, In, and Tl; B = the combination of Fe plus Ni and/or Co plus ≥1 element of Mg, Mn, etc.,; C = ≥1 Pb, Eu, B, Sn, Te, and Cu; a = 0.05-5.0; b = 5-12; c = 0-5.0; d = 0.1-2.0; e = 0.1-2.0; x = number of O atoms; and b > a + c. A catalyst Ge0.5Li0.5Cs0.1K0.1Ni6.2Mg2.5Fe2Bi0.75Ce0.5Mo13.6Ox was prepared and used for ammoxidn. of propylene to give 82.5% **acrylonitrile**.

L68 ANSWER 11 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 11
ACCESSION NUMBER: 1994:167283 HCAPLUS Full-text
DOCUMENT NUMBER: 120:167283
TITLE: Catalysts for ammoxidation of olefins
INVENTOR(S): Suresh, Dev D.; **Seely, Michael J.**; Friedrich, Maria S.; **Paparizos, Christos**
PATENT ASSIGNEE(S): **Standard Oil Co., USA**
SOURCE: U.S., 11 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5258543	A	19931102	US 1992-904611	19920626
JP 07082228	A	19950328	JP 1993-216786	

				<--
US 5093299	A	19920303	US 1990-462202	
				1990
				0109
				<--
ES 2057448	T3	19941016	ES 1990-313574	
				1990
				1213
				<--
IN 179782	A1	19971206	IN 1990-DE1260	
				1990
				1214
				<--
BR 9006650	A	19911001	BR 1990-6650	
				1990
				1228
				<--
RO 109511	B1	19950330	RO 1991-146695	
				1991
				0107
				<--
CN 1053197	A	19910724	CN 1991-100078	
				1991
				0108
				<--
CN 1026758	B	19941130		
RU 2038146	C1	19950627	RU 1991-4894302	
				1991
				0108
				<--
JP 07047271	A	19950221	JP 1991-1034	
				1991
				0109
				<--
JP 3337696	B2	20021021		
KR 184871	B1	19990415	KR 1991-182	
				1991
				0109
				<--
US 5175334	A	19921229	US 1991-806959	
				1991
				1212
				<--
PRIORITY APPLN. INFO.:			US 1990-462202	A2
				1990
				0109
				<--

AB The title compds. are prepared by ammoxidn. of C3H6 or isobutylene with O-containing gas and NH3 at 260-600° using metal oxide catalysts AaKbCscMgdNieFefBigMO12Ox (A = Co, Mn, Cr, P, Sb, Te, Na, Ce, W; a = 0-5; b = 0-0.4; c = 0-0.4; b + c = 0.1-0.4; d, e, f, g = 0.2-10; x is determined by valency requirement). Thus, ammoxidn. of C3H6 (in 1.8:2.2:3.6:2.4:6 mol ratio of C3H6-NH3-O-N2-H2O mixture) in a fixed bed reactor containing Cs0.05K0.06Ni5.5Mg2.5Fe2.0Bi1.0P0.1Mo12.0Ox on SiO2 catalyst at 430° and 6.0 s residence time gave 78.5% **acrylonitrile** (I) with C3H6 conversion 99.0% and I selectivity 79.3%.

L68 ANSWER 13 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 13
ACCESSION NUMBER: 1993:411574 HCAPLUS Full-text
DOCUMENT NUMBER: 119:11574
TITLE: Manufacture of hydrogen cyanide by catalytic ammoxidation of crude acetonitrile
INVENTOR(S): Suresh, Dev D.; Cesa, Mark C.; Yang, Tai C.; Grasselli, Robert K.; Bruce, Mark R.; **Seely, Michael J.**; Friedrich, Maria S.; Dubbert, Robert A.
PATENT ASSIGNEE(S): **Standard Oil Co., USA**

SOURCE: U.S., 7 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5204079	A	19930420	US 1991-656543 <--	19910215

PRIORITY APPLN. INFO.: US 1991-656543 <-- 19910215

AB HCN is prepared from HCN-containing CH3CN(l) by contacting the crude CH3CN with an ammoxidn. catalyst at elevated temperature in the presence of an O-containing gas and NH3. Preferably, the process is performed in the absence of C3H6.

L68 ANSWER 14 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 14
ACCESSION NUMBER: 1992:579231 HCAPLUS Full-text
DOCUMENT NUMBER: 117:179231
TITLE: Catalyst for propylene ammoxidation to **acrylonitrile**
INVENTOR(S): **Paparizos, Christos**; Shaw, Wilfrid G.
PATENT ASSIGNEE(S): **Standard Oil Co., USA**
SOURCE: U.S., 5 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5134105	A	19920728	US 1990-495875 <--	19900319
US 5235088	A	19930810	US 1992-881581 <--	19920512
RO 111162	B1	19960730	RO 1992-775 <--	19920609
EP 573713	A1	19931215	EP 1992-305436 <--	19920612
EP 573713	B1	19970102		
R: AT, DE, ES, GB, IT, NL				
CN 1080284	A	19940105	CN 1992-105674 <--	19920619
CN 1034863	B	19970514		
BR 9202497	A	19940118	BR 1992-2497	19920707

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CN 1141216	A	19970129	CN 1996-101529	1996 0115

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CN 1071593	B	20010926		

PRIORITY APPLN. INFO.: US 1990-495875 A3 1990 0309

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AB Olefins, such as propylene and isobutylene, are converted to the corresponding unsatd. nitriles, **acrylonitrile**, and methacrylonitrile, resp., by reacting a mixture of the olefin, NH3 and mol. O-containing gas in the presence of a catalyst containing the oxides of Mo, Bi, Fe, Co, Ni, and Cr and either P or Sb or mixts. thereof, and an alkali metal or mixture thereof, and optionally 1 element selected from the group of an alkaline earth metal, a rare earth metal, Nb, Tl, As, Mg, Zn, Cd, V, B, Ca, Sn, Ge, Mn, W, Te, or mixts. thereof.

L68 ANSWER 15 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 15
ACCESSION NUMBER: 1991:608830 HCAPLUS Full-text
DOCUMENT NUMBER: 115:208830
TITLE: Process for the manufacture of **acrylonitrile** and methacrylonitrile
INVENTOR(S): Friedrich, Maria S.; **Seely, Michael J.** ; Suresh, Dev D.
PATENT ASSIGNEE(S): **Standard Oil Co., USA**
SOURCE: Eur. Pat. Appl., 10 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 437056	A2	19910717	EP 1990-313574	1990 1213

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EP 437056	A3	19910918		
EP 437056	B1	19940810		
EP 437056	B2	19980415		
R: AT, DE, ES, GB, IT, NL				
US 5093299	A	19920303	US 1990-462202	1990 0109

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ES 2057448	T3	19941016	ES 1990-313574	1990 1213

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IN 179782	A1	19971206	IN 1990-DE1260	1990 1214

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BR 9006650	A	19911001	BR 1990-6650	1990 1228

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RO 109511	B1	19950330	RO 1991-146695	1991 0107

<--

CN 1053197	A	19910724	CN 1991-100078	1991

0108
<--

CN 1026758	B	19941130		
RU 2038146	C1	19950627	RU 1991-4894302	1991 0108
				<--
JP 07047271	A	19950221	JP 1991-1034	1991 0109
				<--
JP 3337696	B2	20021021		
KR 184871	B1	19990415	KR 1991-182	1991 0109
				<--
US 5175334	A	19921229	US 1991-806959	1991 1212
				<--

PRIORITY APPLN. INFO.: US 1990-462202 A
1990
0109
<--

AB (Meth)**acrylonitrile** is prepared by ammoxidn. of C3H6 or isobutylene with O-containing gas and NH3 at 260-600° using oxide catalysts AaKbCscMgdNieFefBigMO12Ox (A = Co,Mn,Cr,P,Sb,Te,Na,Ce, and/or W; a = 0-5; b = 0-0.4; c = 0-0.4; b+c = 0.1-0.4; d,e,f = 0.2-10; x is based on valency requirements). Thus, ammoxidn. of C3H6 (in 1.8:2.2:36:2.4:6 C3H6-NH3-O-N2-H2O mixture) in a fixed bed reactor containing K0.04Cs0.03Ni3Mg2Fe1.8Mn0.45Bi0.45Cr0.45Mo12Ox on SiO2 catalyst at 430° and 6.0 s residence time gave C3H6 conversion 100% and **acrylonitrile** selectivity 78.6%.

L68 ANSWER 16 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 16
ACCESSION NUMBER: 1991:229592 HCAPLUS Full-text
DOCUMENT NUMBER: 114:229592
TITLE: Process and catalysts for ammoxidation of paraffins in monomeric unsaturated nitrile manufacture
INVENTOR(S): **Seely, Michael J.**; Friedrich, Maria S.; Suresh, Dev D.
PATENT ASSIGNEE(S): **Standard Oil Co., USA**
SOURCE: U.S., 5 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4978764	A	19901218	US 1989-411989	1989 0925
				<--
EP 420455	A2	19910403	EP 1990-310039	1990 0913
				<--
EP 420455	A3	19911023		
EP 420455	B1	19950322		
R: DE, IT, NL				
JP 03157356	A	19910705	JP 1990-254001	1990 0921
				<--

				1993 0901 <--
JP 2845728	B2	19990113		
ZA 9306480	A	19940325	ZA 1993-6480	1993 0902 <--
RU 2105757	C1	19980227	RU 1993-50369	1993 0902 <--
RO 111163	B1	19960730	RO 1993-1191	1993 0903 <--
CN 1100091	A	19950315	CN 1993-116832	1993 0906 <--
CN 1036581	B	19971203		
BR 9303736	A	19950502	BR 1993-3736	1993 0908 <--
KR 138499	B1	19980501	KR 1993-18122	1993 0909 <--
PRIORITY APPLN. INFO.:			US 1992-904611	1992 0626 <--

AB The title catalysts showing improved activity and selectivity have the empirical formula VSbaMmNnOx (a = 0.5-2; M = ≥1 of Sn, Ti, Fe, Ga; m = 0.05-3; N = ≥1 of W, Bi, MO, Li, etc.; n = 0.05-0.5) and are prepared by contacting in an aqueous solution a V compound and an Sb compound while the V compound is in solution Stirring 11.42 g V2O5, 450 mL H2O, and 50 g 30% H2O2 for 15 min, heating 21.85 g Sb2O3 with the mixture, digesting for 3 h, adding 4.99 g fumed TiO2, 33.33 g 30% SiO2 sol, and a proper amount of CrO3, grinding and calcining gave a catalyst with empirical formula VSb1.2Cr0.2Ti0.5Ox. A feed containing 1.8/2.2/3.6/2.4/6 mol ratio C3H6/NH3/O/N/H2O was contacted with the catalyst at 460° for 0.17 s giving 67.8 mol% **acrylonitrile** at 96.8% C3H6 conversion and 70.1% selectivity.

L68 ANSWER 12 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 12
ACCESSION NUMBER: 1994:55269 HCAPLUS Full-text
DOCUMENT NUMBER: 120:55269
TITLE: Catalysts for the manufacture of **acrylonitrile** and methacrylonitrile
INVENTOR(S): Suresh, Dev D.; Friedrich, Maria S.; **Seely, Michael J.**
PATENT ASSIGNEE(S): **Standard Oil Co., USA**
SOURCE: U.S., 5 pp. Cont.-in-part of U.S. 5,093,299.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5212137	A	19930518	US 1991-736864	1991 0729

JP 2877477	B2	19990331		
KR 156578	B1	19981201	KR 1990-15133	1990 0924
			<--	
PRIORITY APPLN. INFO.:			US 1989-411989 A	1989 0925
			<--	

AB α,β-Unsatd. mononitriles are prepared by catalytic ammoxidn. of C3-5 paraffins with a catalyst composition containing 10-90% diluent/support, and 10-90% metal oxides having the formula AaDdBicFefMo12Ox (A = Li, Na, K, Rb, Cs, Tl, B, W, Sn, La; D = Cr, Sb, Pb, P, Cu, Ni, Co, Mn, Mg; a = 0-10; c = 0.1-10; d = 0-10; f = 0.2-10). Thus, a 5:1:2:1 C3H8-NH3-O-H2O mixture was heated with a catalyst composition containing 33% Al2O3 and 67% Cs0.05K0.1Ni2.5Co4.5Fe2MnBiCr0.5Mo13.2Ox at 470° for 1.1 s to give **acrylonitrile** in 58.3% selectivity with 10% C3H8 conversion.

L68 ANSWER 17 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 17
ACCESSION NUMBER: 1990:36713 HCAPLUS Full-text
DOCUMENT NUMBER: 112:36713
TITLE: Ammoxidation catalyst performance improvement via separate boron addition and process for nitrile manufacture from olefins
INVENTOR(S): Suresh, Dev D.; **Seely, Michael J.**; Brazdil, James F.; Grasselli, Robert K.
PATENT ASSIGNEE(S): **Standard Oil Co., USA**
SOURCE: U.S., 5 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4855275	A	19890808	US 1988-157428	1988 0218
			<--	
PRIORITY APPLN. INFO.:			US 1988-157428	1988 0218
			<--	

AB Ammoxidn. catalysts which are contacted with a heat-decomposable B compound (so as to deposit B on the surface of the catalyst) have increased catalyst activity and nitrile selectivity. Thus, a molybdate-based ammoxidn. catalyst was heated with 2% MoO3 and 1% H3BO3, then contacted at 445° with a feed containing propylene (I), O, N, NH3, and H2O, producing **acrylonitrile** in 82.0% yield and 85.1% selectivity with 96.4% I conversion, vs, 79.0, 79.4, and 99.6, resp., for an untreated control catalyst.

L68 ANSWER 18 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 18
ACCESSION NUMBER: 1987:428927 HCAPLUS Full-text
DOCUMENT NUMBER: 107:28927
TITLE: Method of preparation of highly active-phase (amm)oxidation catalysts with improved performance and attrition resistance
INVENTOR(S): Suresh, Dev D.; Zagata, Robert J.; Friedrich, Maria S.; **Seely, Michael J.**
PATENT ASSIGNEE(S): **Standard Oil Co., USA**
SOURCE: U.S., 5 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 4
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4659689	A	19870421	US 1986-836269	1986 0305
US 5059621	A	19911022	US 1989-430286	1989 1102
US 5288744	A	19940222	US 1992-900479	1992 0618

PRIORITY APPLN. INFO.:

LU 1984-85544	A	1984 0919
US 1985-777728	B2	1985 0919
US 1986-836269	A3	1986 0313
US 1986-839269	A3	1986 0313
US 1988-172494	A3	1988 0324
US 1989-430286	A3	1989 1102
US 1991-696708	A3	1991 0507

AB A process for the preparation of a Bi molybdate-based catalyst (e.g., 80% K0.1Ni2.5Co4.5Fe2CrBiW0.5Mo12Ox-20% SiO2), useful for ammoxidn. of propylene and butylene, comprises (1) adding a dried mixture of metal salts of the active phase of the catalyst to an aqueous sol containing a support material for the active phase; (2) adding an acid to this slurry; (3) heating the slurry to dryness; and (4) calcining the dried precursor to form the catalyst.

L68 ANSWER 19 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 19
ACCESSION NUMBER: 1982:581770 HCAPLUS Full-text
DOCUMENT NUMBER: 97:181770
TITLE: Increasing the activity of a catalytic material
INVENTOR(S): Grasselli, Robert; **Seely, Michael J.**; Suresh, Dev; Bigler, Leroy K.
PATENT ASSIGNEE(S): **Standard Oil Co., USA**
SOURCE: Ger. (East), 33 pp.
CODEN: GEXXA8
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DD 153761	A5	19820203	DD 1980-224816	1980 1029 <--
PRIORITY APPLN. INFO.:			US 1979-88889 A	1979 1029 <--
			US 1979-90826 A	1979 1030 <--

AB The activity of complex oxide catalysts was improved by heating them, first in a non-oxidizing gas, then in an oxidizing gas. Thus 50% K0.1Cs0.05Ni2.5Fe2Bi1Mn1Cr0.5Mo13.2O2-50% SiO2 were heated overnight in an oven at 120°, then heated in air 3 h at 290° and 3 h at 425° to give a catalyst for preparation of **acrylonitrile** by reaction of propylene with NH3.

L68 ANSWER 20 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:695936 HCAPLUS Full-text
DOCUMENT NUMBER: 137:218729
TITLE: Ammoxidation of a mixture of alcohols into a mixture of nitriles to acetonitrile and hydrogen cyanide during the manufacture of acrylonitrile
INVENTOR(S): Godbole, Sanjay P.; **Seely, Michael J.** ; Suresh, Dev D.
PATENT ASSIGNEE(S): The Standard Oil Company, USA
SOURCE: PCT Int. Appl., 14 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002070465	A1	20020912	WO 2001-US6881	2001 0305 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1366019	A1	20031203	EP 2001-913286	2001 0305 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
BR 2001016920	A	20040427	BR 2001-16920	2001 0305

<--

CN 1492853	A	20040428	CN 2001-822988	2001 0305
			<--	
JP 2004525913	T	20040826	JP 2002-569786	2001 0305
			<--	
RU 2264385	C2	20051120	RU 2003-127737	2001 0305
			<--	
PRIORITY APPLN. INFO.:			WO 2001-US6881 W	2001 0305
			<--	

AB A process for increasing the yield of one or both co-products HCN and acetonitrile produced during the manufacture of acrylonitrile comprises introducing a hydrocarbon selected from propylene and propane, a mixture comprising one or more alcs. selected from crude methanol, crude ethanol, or crude propanol, ammonia and air into a reaction zone containing an ammoxidn. catalyst, reacting the hydrocarbon, alc., ammonia and oxygen over the catalyst at an elevated temperature to produce acrylonitrile, hydrogen cyanide and acetonitrile, and recovering the acrylonitrile, hydrogen cyanide, and acetonitrile from the reactor.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L68 ANSWER 21 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:591039 HCAPLUS Full-text
DOCUMENT NUMBER: 127:176195
TITLE: Ammoxidation method and catalysts for production of unsaturated nitriles from alkenes
INVENTOR(S): **Paparizos, Christos**; Uajlfrid, Garsajd Sho; Shaw, Wilfrid G.
PATENT ASSIGNEE(S): Dze Standart Ojl Kompani, USA
SOURCE: Russ. From: Izobreteniya 1997, (11), 149. CODEN: RUXXE7
DOCUMENT TYPE: Patent
LANGUAGE: Russian
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RU 2077528	C1	19970420	RU 1992-5052029	1992 0622
			<--	
PRIORITY APPLN. INFO.:			SU 1992-5052029 A	1992 0622
			<--	

AB Title only translated.

L68 ANSWER 22 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1995:769767 HCAPLUS Full-text
DOCUMENT NUMBER: 123:173479
TITLE: Catalysts for gas-phase ammoxidation of olefins
INVENTOR(S): Friedrich, Maria S.; Seeley, Michael J.; **Paparizos, Christos**; Suresh, Dev D.
PATENT ASSIGNEE(S): **Standard Oil Co., USA**

SOURCE: Eur. Pat. Appl., 17 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 641771	A1	19950308	EP 1993-307073	19930908 <--
EP 641771	B1	19981202		
R: AT, DE, ES, GB, IT, NL				
AT 174024	T	19981215	AT 1993-307073	19930908 <--
ES 2125954	T3	19990316	ES 1993-307073	19930908 <--

PRIORITY APPLN. INFO.: EP 1993-307073 A 19930908 <--

AB Ammoxidn. of C3-5 mono-olefins to α,β-mono-unsatd. acyclic nitriles and HCN includes introducing such mono-olefins, mol. oxygen and ammonia into a reaction zone into vapor phase contact with a solid ammoxidn. catalyst, wherein the mol ratio of introduced mol. oxygen and ammonia to the introduced mono-olefin is at least 1.5 and 1.0, resp.; wherein the catalyst contains the elements and proportions indicated by the empirical formula V1SbaMmNnOx where a = 0.5-2; M = ≥1 Sn, Ti, Fe, and Ga; m = 0.05-3; N = ≥1 W, Bi, Mo, Li, Mg, P, Zn, Mn, Te, Ge, Nb, Zr, Cr, Al, Cu, Ce, B; n = 0.0-0.5; and wherein the preparation of the catalyst includes contacting in an aqueous dispersion a vanadium compound and an antimony compound while the vanadium is in solution

L68 ANSWER 23 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1995:748604 HCAPLUS Full-text
DOCUMENT NUMBER: 123:113054
TITLE: A process for reduction of wastes during manufacture of **acrylonitrile**
INVENTOR(S): Bigler, Kenneth L.; Bott, Paul E.; Friedrich, Maria S.; Keckler, Kenneth P.; Kocjancic, Frank J.; Miko, Steve J.; Reiling, Vincent G.; Rowe, Steven J.; **Seely, Michael J.**; et al.
PATENT ASSIGNEE(S): **Standard oil Co., USA**
SOURCE: Eur. Pat. Appl., 10 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 638546	A1	19950215	EP 1994-300858	19940204 <--
EP 638546	B1	19981118		
R: DE, ES, GB, IT, NL				

US 5457223	A	19951010	US 1993-104752	1993 0811
			<--	
PRIORITY APPLN. INFO.:			US 1993-104752	A 1993 0811
			<--	
			US 1992-959237	A2 1992 1009
			<--	

AB For substantial reduction or complete elimination of (NH4)2SO4 generated during **acrylonitrile** production by direct ammoxidn. of propylene/propane with NH3 and an O-containing gas (e.g., air) over a fluidized-bed catalyst, MeOH is fed to the reactor in the upper portion at a location where it reacts with a portion if not all of the excess NH3 without affecting the **acrylonitrile** yield. Preferably, MeOH is introduced into the reactor at below its coking temperature When an O-lean fluidized-bed catalyst is used, an addnl. O-containing gas is introduced into the reaction at a distance 8-14 in. from the MeOH feed location.

L68 ANSWER 24 OF 32 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1994:458200 HCAPLUS Full-text
DOCUMENT NUMBER: 121:58200
TITLE: Ammoxidation of olefins
INVENTOR(S): **Paparizos, Christos**; Shaw, Wilfrid Garside
PATENT ASSIGNEE(S): **Standard Oil Co., USA**
SOURCE: Eur. Pat. Appl., 10 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 573713	A1	19931215	EP 1992-305436	1992 0612
			<--	
EP 573713	B1	19970102		
R: AT, DE, ES, GB, IT, NL				
US 5134105	A	19920728	US 1990-495875	1990 0319
			<--	
AT 147070	T	19970115	AT 1992-305436	1992 0612
			<--	
ES 2095406	T3	19970216	ES 1992-305436	1992 0612
			<--	
PRIORITY APPLN. INFO.:			US 1990-495875	1990 0319
			<--	
			EP 1992-305436	A 1992 0612
			<--	

AB Olefins such as propylene and isobutylene are converted to the corresponding unsatd. nitriles, **acrylonitrile**, and methacrylonitrile, resp., by reacting a mixture of the

olefin, ammonia, and mol. oxygen-containing gas in the presence of a catalyst containing the oxides of molybdenum, bismuth, iron, cobalt, nickel, and chromium, and either phosphorus or antimony or mixts. thereof, and an alkali metal or mixture thereof, and optionally one element selected from the group of an alkaline earth metal, a rare earth metal, niobium, thallium, arsenic, magnesium, zinc, cadmium, vanadium, boron, calcium, tin, germanium, manganese, tungsten, tellurium, or mixts. thereof.

L68 ANSWER 25 OF 32 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2002-705617 [76] WPIX
DOC. NO. CPI: C2002-200136 [76]
TITLE: Preparation of supported **catalyst** for **catalytic** vapor phase ammoxidation of propylene or isobutylene to form (meth) **acrylonitrile** comprises forming and mixing **catalyst** precursor with aqueous sol, drying obtained slurry, and calcining
DERWENT CLASS: A41; E16; J04
INVENTOR: FRIEDRICH M S; **SEELY M J**; SURESH D D
PATENT ASSIGNEE: (STAH-C) STANDARD OIL CO OHIO
COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 6451730 <--	B1	20020917	(200276)*	EN	6[0]	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 6451730 B1		**US 1997-883716** **19970627**	

PRIORITY APPLN. INFO: **US 1997-883716 19970627**
AB US 6451730 B1 UPAB: 20050527
NOVELTY - A supported **catalyst** is prepared by mixing a vanadium compound, at least a portion of an antimony compound, and at least a portion of a support material to form a slurry, heating the slurry, and calcining to form a **catalyst** precursor; mixing the **catalyst** precursor with an aqueous sol to form a second slurry; drying the second slurry; and calcining the dried mixture at least 150 degrees C.

DETAILED DESCRIPTION - Preparation of a supported **catalyst** comprising the elements and proportions indicated by the empirical formula, V1SbaMbOx, involves mixing the vanadium compound, at least a portion of the antimony (Sb) compound, and at least a portion of the M compound and an aqueous sol containing a portion of the support material to form an aqueous slurry, heating the slurry to remove the water, and calcining at at least 150 degrees C to form a **catalyst** precursor; mixing the **catalyst** precursor with an aqueous sol containing the remaining portion of the support for the **catalyst** and any remaining portion of the Sb compound and M compound to form a second slurry; drying the second slurry to remove the water to form a dry mixture; and calcining the dried mixture at at least 150 degrees C to form the finished **catalyst**.

USE - Used for the preparation of a supported **catalyst** which is useful in **catalytic** vapor phase ammoxidation of propylene, propane, or isobutylene to produce (meth)**acrylonitrile**.

ADVANTAGE - The **catalyst** prepared by the inventive process exhibits outstanding characteristics as propylene ammoxidation **catalysts** with **acrylonitrile**, yielding similar to those obtained with present day commercial antimonate **catalysts**. It has potential as high throughput **catalysts** which give low levels of waste organics during use. The process allows for easier preparation of the **catalyst**, and increases the hardness of the **catalyst**, resulting in additional or improved attrition resistance when used in the fluid bed reactor.

L68 ANSWER 26 OF 32 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2001-158999 [16] WPIX

DOC. NO. CPI: C2001-047115 [16]
TITLE: Ammoxidation of a mixture of ketones to **acetonitrile** and hydrogen cyanide which produces increased yields of these co-products
DERWENT CLASS: A41; E16; E35; H04
INVENTOR: GODBOLE P; GODBOLE S P; SEELEY M J; SEELY J; **SEELY M; SEELY M J**; SURESH D; SURESH D D; DHANARAJ S D; PURUSHOTTAM G S
PATENT ASSIGNEE: (GODB-I) GODBOLE S P; (INNO-N) INNOVENE USA LLC; (MOBI-C) MOBIL OIL CORP; (SEEL-I) SEELY M J; (STAH-C) STANDARD OIL CO OHIO; (SURE-I) SURESH D D
COUNTRY COUNT: 91

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2000073261 <--	A1	20001207	(200116)*	EN	19[0]	
AU 2000051359 <--	A	20001218	(200118)	EN		
US 20020004027 <--	A1	20020110	(200208)	EN		
BR 2000010997 <--	A	20020219	(200222)	PT		
EP 1181268 <--	A1	20020227	(200222)	EN		
KR 2002003572 <--	A	20020112	(200247)	KO		
US 6413485 <--	B2	20020702	(200248)	EN		
CN 1351586 <--	A	20020529	(200258)	ZH		
JP 2003500468	W	20030107	(200314)	JA	17	
ZA 2001009165	A	20030430	(200334)	EN	54	
US 20030198586	A1	20031023	(200370)	EN		
US 6667020	B2	20031223	(200408)	EN		
EP 1520852	A2	20050406	(200523)	EN		
CN 1629072	A	20050622	(200563)	ZH		
EP 1181268	B1	20051012	(200568)	EN		
EP 1181268	B8	20051214	(200602)	EN		
DE 60023134	E	20060223	(200617)	DE		
DE 60023134	T2	20060413	(200626)	DE		
ES 2249271	T3	20060401	(200627)	ES		
CN 1243726	C	20060301	(200660)	ZH		
RO 120909	B1	20060929	(200673)	RO		
CN 1267347	C	20060802	(200703)	ZH		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2000073261 A1		**WO 2000-US13374**	**20000516**
US 20020004027 A1		**US 1999-320937**	**19990527**
US 6413485 B2		**US 1999-320937**	**19990527**
US 20030198586 A1	Cont of	**US 1999-320937**	

19990527	
US 6667020 B2 Cont of 19990527	US 1999-320937
EP 1520852 A2 Div Ex 19990527	EP 2000-935980
AU 2000051359 A 20000516	AU 2000-51359
BR 2000010997 A 20000516	BR 2000-10997
CN 1351586 A 20000516	CN 2000-807997
CN 1629072 A Div Ex 20000516	CN 2000-807997
CN 1243726 C 20000516	CN 2000-807997
DE 60023134 E 20000516	DE 2000-623134
DE 60023134 T2 20000516	DE 2000-623134
EP 1181268 A1 20000516	EP 2000-935980
EP 1181268 B1 20000516	EP 2000-935980
EP 1181268 B8 20000516	EP 2000-935980
DE 60023134 E 20000516	EP 2000-935980
DE 60023134 T2 20000516	EP 2000-935980
ES 2249271 T3 20000516	EP 2000-935980
JP 2003500468 W 20000516	JP 2000-621328
BR 2000010997 A 20000516	WO 2000-US13374
EP 1181268 A1 20000516	WO 2000-US13374
JP 2003500468 W 20000516	WO 2000-US13374
EP 1181268 B1 20000516	WO 2000-US13374
EP 1181268 B8 20000516	WO 2000-US13374
DE 60023134 E 20000516	WO 2000-US13374
DE 60023134 T2 20000516	WO 2000-US13374
RO 120909 B1 20000516	WO 2000-US13374
RO 120909 B1 20000516	RO 2001-1268
ZA 2001009165 A 20011106	ZA 2001-9165
KR 2002003572 A 20011127	KR 2001-715230
US 20030198586 A1 20011210	US 2001-16703
US 6667020 B2 20011210	US 2001-16703
EP 1520852 A2 19990527	EP 2004-78068
CN 1629072 A 20000516	CN 2004-10095706
EP 1181268 B1 Related to	EP 2004-78068 20041109
EP 1181268 B8 Related to	EP 2004-78068 20041109
CN 1267347 C 20000516	CN 2004-10095706

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
EP 1520852	A2	Div ex	EP 1181268	A
DE 60023134	E	Based on	EP 1181268	A
DE 60023134	T2	Based on	EP 1181268	A
ES 2249271	T3	Based on	EP 1181268	A
EP 1181268	B1	Related to	EP 1520852	A
EP 1181268	B8	Related to	EP 1520852	A
US 20030198586	A1	Cont of	US 6413485	B
US 6667020	B2	Cont of	US 6413485	B
AU 2000051359	A	Based on	WO 2000073261	A
BR 2000010997	A	Based on	WO 2000073261	A
EP 1181268	A1	Based on	WO 2000073261	A
JP 2003500468	W	Based on	WO 2000073261	A
EP 1181268	B1	Based on	WO 2000073261	A
EP 1181268	B8	Based on	WO 2000073261	A
DE 60023134	E	Based on	WO 2000073261	A
DE 60023134	T2	Based on	WO 2000073261	A
RO 120909	B1	Based on	WO 2000073261	A

PRIORITY APPLN. INFO: **US 1999-320937 19990527**
US 2001-16703 20011210

AB WO 2000073261 A1 UPAB: 20060202
NOVELTY - Process for increasing the yield of co-product HCN and **acetonitrile** produced during the manufacture of **acrylonitrile** comprises introducing a hydrocarbon selected from propylene or propane, a crude ketone, ammonia and air into a reaction zone containing an ammoxidation **catalyst**, then reacting these over the **catalyst** at an elevated temperature to produce **acrylonitrile**, hydrogen cyanide and **acetonitrile**, and recovering the **acrylonitrile**, hydrogen cyanide and **acetonitrile** from the reactor.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also provided for:

(a) another process for increasing the yield of co-product HCN and **acetonitrile**, which is as above except that a mixture of at least two ketone is used;

(b) process for the ammoxidation of a mixture of 1-4 C ketones to produce a HCN and **acetonitrile**, as above; and

(c) ammoxidation of a crude ketone to produce HCN and **acetonitrile**.

USE - A process for increasing the yield of HCN and **acetonitrile** during the manufacture of **acrylonitrile** is provided.

ADVANTAGE - The process saves on the raw material costs and achieves the same or better conversion and selectivity to the desired co-products.

L68 ANSWER 27 OF 32 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1995-052425 [07] WPIX
CROSS REFERENCE: 1994-064818
DOC. NO. CPI: C1995-024023 [07]
TITLE: **Acrylonitrile** mfr. with reduced ammonia breakthrough - by ammoxidation of propane or propylene@ in fluidised **catalyst** bed and introducing an oxygenate to react with unreacted ammonia.
DERWENT CLASS: A41; E16
INVENTOR: BIGLER K L; BOTT P E; FRIEDRICH M S; KECKLER K P; KOCJANCIC F J; MIKO S J; REILING V G; REILLING V G; ROWE S J; **SEELY M J**; SHAW W G; SHUKI A R; SOCKELL E J; SURESH D D; TROTT L R
PATENT ASSIGNEE: (STAH-C) STANDARD OIL CO OHIO
COUNTRY COUNT: 14

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
ZA 9401200	A	19941130	(199507)*	EN	23[0]	

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EP 638546       A1 19950215 (199511)  EN  10[0]
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JP 07053494     A  19950228 (199517)  JA  8[0]
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BR 9400642      A  19950328 (199519)  PT
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US 5457223      A  19951010 (199546)  EN  7[0]
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CN 1107464      A  19950830 (199732)  ZH
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MX 184642       B  19970509 (199823)  ES
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ES 2125401      T3 19990301 (199916)  ES
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RU 2124476      C1 19990110 (200019)  RU
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KR 297039       B  20011122 (200243)# KO
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KR 308435       B  20011130 (200246)  KO
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TW 496857       A  20020801 (200330)  ZH
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TW 555737       A  20031001 (200423)  ZH
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CN 1037767      C  19980318 (200455)  ZH
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APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
ZA 9401200 A		**ZA 1994-1200**	**19940222**
US 5457223 A CIP of		**US 1992-959237**	**19921009**
US 5457223 A		**US 1993-104752**	**19930811**
KR 297039 B		**KR 1993-24913**	**19931122**
DE 69414660 E		**DE 1994-69414660**	**19940204**
EP 638546 A1		**EP 1994-300858**	**19940204**
EP 638546 B1		**EP 1994-300858**	**19940204**
DE 69414660 E		**EP 1994-300858**	**19940204**

ES 2125401 T3 **19940204**	EP 1994-300858
RU 2124476 C1 **19940209**	RU 1994-3820
KR 308435 B **19940217**	KR 1994-2840
CN 1107464 A **19940221**	CN 1994-101370
CN 1037767 C **19940221**	CN 1994-101370
JP 07053494 A **19940221**	JP 1994-21714
MX 184642 B **19940221**	MX 1994-1300
RO 113343 B1	RO 1994-257 19940221
BR 9400642 A	BR 1994-642 19940222
TW 496857 A **19940315**	TW 1994-102250
TW 555737 A **19940315**	TW 2002-113379

FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 69414660 E	Based on	EP 638546 A
ES 2125401 T3	Based on	EP 638546 A
KR 308435 B	Previous Publ	KR 95005804 A
KR 297039 B	Previous Publ	KR 95014062 A
US 5457223 A	CIP of	US 5288473 A

PRIORITY APPLN. INFO: **ZA 1994-1200 19940222**
US 1993-104752 19930811
KR 1993-24913 19931122

AB ZA 9401200 A UPAB: 20050702
A process for mfr. of **acrylonitrile** with reduced breakthrough of ammonia into the reactor effluent comprises introducing a reaction mixture of propane or propylene, ammonia and an oxygen-containing gas into the lower portion of a fluid bed reactor containing a fluid bed ammoxidation **catalyst** to react to form an **acrylonitrile**-containing prod. stream, and introducing in an upward direction at least one oxygenate (I) capable of reacting with ammonia into the upper portion of the fluid bed reactor at a point where the (I) does not substantially affect the reaction of the hydrocarbon, ammonia and O2-containing gas to form **acrylonitrile** but reacts with at least part of the unreacted ammonia present in the reactor.

ADVANTAGE - Input of (I) gives a substantial reduction in the amount of ammonia present in the reactor effluent.

L68 ANSWER 28 OF 32 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1994-064818 [08] WPIX
CROSS REFERENCE: 1995-052425
DOC. NO. CPI: C1994-029035 [08]
TITLE: Elimination of ammonia break-through in **acrylonitrile** production - comprises introducing methanol into the fluid bed reactor at a specific location and direction
DERWENT CLASS: A41; E16; E35
INVENTOR: BIGLER K L; BIGLER L K; BOTT E P; BOTT P E; FRIEDRICH M S; FRIEDRICH S M; KECKLER K P; KECKLER P K; KOCJANCIC J F; KOJANCIC F J; MIKO J S; MIKO S J; REILING G V; REILING V G; SEELY J M; **SEELY M J**; SHAW G W; SHAW W G; SHUKI A R; SHUKI R A; SOCKELL E J; SOCKELL J E; SURESH D D; TROTT L R; TROTT R L
PATENT ASSIGNEE: (STAH-C) STANDARD OIL CO OHIO
COUNTRY COUNT: 5

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 5288473 <--	A	19940222	(199408)*	EN	7[0] <--	
JP 07126237 <--	A	19950516	(199528)#	JA	8 <--	
BR 9304451 <--	A	19950627	(199534)#	PT	<--	
CN 1102641 <--	A	19950517	(199726)#	ZH	<--	
RO 113342 <--	B1	19980630	(199845)#	RO	<--	
CN 1039007 <--	C	19980708	(200457)#	ZH		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 5288473 A		**US 1992-959237**	**19921009**
RO 113342 B1		**RO 1993-1442**	**19931026**
BR 9304451 A		**BR 1993-4451**	**19931101**
JP 07126237 A		**JP 1993-276646**	**19931105**
CN 1102641 A		**CN 1993-112678**	**19931108**
CN 1039007 C		**CN 1993-112678**	**19931108**

PRIORITY APPLN. INFO: **US 1992-959237 19921009**
RO 1993-1442 19931026
BR 1993-4451 19931101
JP 1993-276646 19931105
CN 1993-112678 19931108

AB US 5288473 A UPAB: 20050507
Process comprises (a) introducing into the lower portion of a fluid bed reactor a hydrocarbon selected from propylene and propane, ammonia and oxygen-containing gas to react in the presence of a fluid bed **catalyst** to produce **acrylonitrile**, (b) introducing an oxygenate comprising methanol at a temperature below its coking temperature into the upper portion of the fluid bed reactor at a point where the methanol does not affect the reaction of the hydrocarbon, ammonia and oxygen-containing gas and reacts with all the unreacted ammonia present in the reactor to eliminate the presence of any free ammonia in the reactor effluent exiting the reactor, (c) passing the reactor effluent containing **acrylonitrile** into a quench column to cool the reactor effluent with water in the absence of sulphuric acid to remove unwanted impurities, and (d) recovering **acrylonitrile** from the quench column.

USE/ADVANTAGE - The method is used to eliminate unreacted ammonia and reduce the amount of ammonium sulphate produced in the mfr. of **acrylonitrile**. The process is simple and economical.

L68 ANSWER 29 OF 32 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1993-264708 [33] WPIX
CROSS REFERENCE: 1992-276576
DOC. NO. CPI: C1993-118073 [33]
TITLE: **Acrylonitrile** and/or **methacrylonitrile** production - by olefin

ammoxidation using oxide **catalyst** containing molybdenum, bismuth, iron, cobalt, nickel, chromium, phosphorus, antimony and alkali metal

DERWENT CLASS: A41; E16
INVENTOR: **PAPARIZOS C**; SHAW W G
PATENT ASSIGNEE: (STAH-C) STANDARD OIL CO OHIO
COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 5235088	A	19930810	(199333)*	EN	6[0]	
<--						

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 5235088 A Div Ex 19900319		**US 1990-495875**	
US 5235088 A 19920512		**US 1992-881581**	

FILING DETAILS:

PATENT NO	KIND	PATENT NO
US 5235088 A	Div ex	US 5134105 A

PRIORITY APPLN. INFO: **US 1992-881581 19920512**
US 1990-495875 19900319

AB US 5235088 A UPAB: 20050701
Conversion of propylene and/or isobutylene to **acrylontrile** and/or methacrylontrile respectively is effected by vapour-phase reaction with O2-containing gas and NH3 at 300-600 deg. C in the presence of an oxide **catalyst** of formula (I):
MoaBibFecCodNieCrfXgYiZjOk (I)
X = a mixture of P and Sb; Y = alkali metal(s); Z = alkaline earth metal, rare earth metal, Nb, Tl, As, Zn, Cd, V, B, Sn, Ge, Mn, W and/or Te; a = 12-14; b = 1-5; c = 0.5-5; d and e = 0.1-6; f and g = 0.1-4; i = 0.1-2; j = 0-3; and k = a number determined by the valance requirements of the other elements. Pref. **catalyst** has g = 0.75-3 and is supported on SiO2, giving a composite containing 10-70 (especially 40-60) weight% support.
ADVANTAGE - The **catalysts** are inexpensive, have high activity, giving at lest 80% yields at temps. slightly lower than normal, and have good stability. Low air:olefin ratios and high space velocities may be used. NH3 utilisation is efficient.

L68 ANSWER 30 OF 32 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1993-066451 [08] WPIX
DOC. NO. CPI: C1993-029658 [21]
TITLE: **Catalyst** for production of **phthalonitrile**(s) from xylene with oxygen@ and ammonia - formed by calcining iron-antimony oxide cpd and combining with vanadium and bismuth, for improved prod. per pass conversion and greater prod. selectivity
DERWENT CLASS: A41; E14; F01; J04
INVENTOR: **PAPARIZOS C**; SHAW W G
PATENT ASSIGNEE: (STAH-C) STANDARD OIL CO OHIO
COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 5183793	A	19930202	(199308)*	EN	4[0]	

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APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 5183793 A		**US 1991-789836**	**19911113**

PRIORITY APPLN. INFO: **US 1991-789836** **19911113**

AB US 5183793 A UPAB: 20060503

A **catalyst** suitable for ammoxidation has the formula V1BiaSbbFecXdYcZfOg, where X is Mo, Cu, W, Nb, Te, P, Sn, Ge or As, Y is Co, Ni, Ce, La, Mn or Cr, Z is an alkali or alkaline earth metal, B or Tl and a= 0.1-10, b= 0.01-20, c=0.01-5, d=0-5, e=0-3, f=0-1 and g is determined by valence requirements. The **catalyst** is formed by calcining a preformed Fe-Sb oxide compsn. and combining it with V, Bi and other opt. metal cpds.

USE/ADVANTAGE - The **catalyst** is used in the formation of **phthalonitriles** (pref. **isophthalonitrile**) from the reaction of xylenes (pref. m-xylene) with O2 and NH3 at elevated temps. **Phthalonitriles** are useful starting materials for the production of polymers for e.g. synthetic fibres, agricultural chemicals and pharmaceuticals. The **catalyst** results in an improved prod. per pass conversion and increased prod. selectivit

L68 ANSWER 31 OF 32 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1981-58674D [32] WPIX
TITLE: Metal complex **catalysts** e.g. of nickel or zinc - useful for contact decomposition of hydroperoxide(s)
DERWENT CLASS: A41; E14
INVENTOR: DOLHYJ S R; **PAPARIZOS C**; VELENYI L J
PATENT ASSIGNEE: (STAH-C) STANDARD OIL CO OHIO
COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 4279829	A	19810721	(198132)*	EN	6	

<--

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 4279829 A		**US 1978-973070**	**19781226**
US 4279829 A		**US 1979-90161**	**19791031**

AB US 4279829 A UPAB: 20050419

Catalysts are claimed with the formula (I) in which M is a positively charged metal or metal cpd.; Z is S,O,P,S-P or S-S; L is C, P or N; A is one or more of H, 1-30C alkoxy, N-R2 in which R is H, 1-30C alkyl and phenyl or phenyl substd. with one or more 1-20C alkyl and 1-20C alkoxy; and 1-30C hydrocarbon gps. or 1-30C hydrocarbon gps. substd. with one or more substituents chosen from halogen, 1-12C hydroxy gps., 1-12C acid gps., 1-12C aldehyde gps., 1-12C ketone gps. and 1-10C **nitrile** cpds.; and n is 1 or 2 and b is 1, 2 or 3. with the proviso that when Z is S or O, A is one or more of halogen. H, NH2 and 1-30C hydrocarbon gp. or 1-30C hydrocarbon gps. substd. with one or more halogen, 1-12C hydroxy gps., 1-12C acid gps., 1-12C aldehyde gps., 1-12C ketone gps., and 1-10C **nitrile** gps.

M is pref. a gp. IIB, IB or VIII transition metal, especially Zn or Ni; Z is S, O or P; and A is phenyl, phenyl substd. with one or more 1-8C alkyl, a 1-30C alkoxy, an amino gp. or an amino gp. substd. by one or more 1-4C alkyl gps.

The **catalysts** are especially useful for contact decomposition of hydroperoxides as described in parent specification US4262153 (32533 D/18), e.g. in the production of phenol by decomposition of cumene hydroperoxide and cyclohexylbenzene hydropoeroxide.

L68 ANSWER 32 OF 32 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1981-32533D [18] WPIX
TITLE: Decomposition of hydro:peroxide(s) - by contacting with metal complex **catalyst**
DERWENT CLASS: A41; E14
INVENTOR: DOLHYJ S R; **PAPARIZOS C**; VELENYI L
PATENT ASSIGNEE: (STAH-C) STANDARD OIL CO OHIO
COUNTRY COUNT: 2

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 4262153 <--	A	19810414	(198118)*	EN		
CA 1141770 <--	A	19830222	(198312)#	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 4262153 A **19781226**		**US 1978-973070**	
US 4262153 A **19791031**		**US 1979-90161**	
CA 1141770 A **19801215**		**CA 1980-366808**	

AB US 4262153 A UPAB: 20050419
Hydroperoxide is decomposed by contact with a **catalyst** of formula (I) where M is a positively charged metal or its cpd.; Z is S, O, P, S-P or S-S; L is C, P or N, A is H, halogen, 1-30C alkoxy, NR2 in which R is H, 1-30C alkyl or 4-8 membered aryl opt. substd. by 1-20C alkyl or alkoxy, or up to 30C hydrocarbon gp. opt. substd. by halogen, 1-12C hydroxy, acid, aldehyde or ketone containing gp. or 1-10C **nitrile** containing gp.; n is 1 or 2; and 1-3; provided that when Z is S or O, then A is H, halogen, NH2 or opt. substd. hydrocarbon gp.
Phenol can be produced with high yields and selectivities by decomposing cumene or cyclohexyl-benzene hydroperoxide using the **catalyst**. Alcohol, ketone and aldehydes prods. can be used as monomers, solvents and intermediates.

TEXT SEARCH

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=> d his l40

     (FILE 'REGISTRY' ENTERED AT 10:48:03 ON 28 MAR 2007)
L40          12 S L32 OR L37-L39

=> d que l40
L32          12 SEA FILE=REGISTRY ABB=ON  PLU=ON  (K(L)CS(L)CE(L)CR(L)C
                O(L)NI(L)FE(L)BI(L)MO(L)O)/ELS
L37           6 SEA FILE=REGISTRY ABB=ON  PLU=ON  (RB OR NA OR LI OR
                TL)/ELS AND L32
L38          11 SEA FILE=REGISTRY ABB=ON  PLU=ON  (P OR SB OR TE OR B
                OR GE OR W OR CA OR MG OR LNTH/PG OR ACTN/PG)/ELS AND
                L32
L39           5 SEA FILE=REGISTRY ABB=ON  PLU=ON  L38 AND L37
L40          12 SEA FILE=REGISTRY ABB=ON  PLU=ON  L32 OR (L37 OR L38
                OR L39)


=> d his l63

     (FILE 'RAPRA, WPIX' ENTERED AT 12:00:11 ON 28 MAR 2007)
                SAV L62 SAC846IN/A

     FILE 'STNGUIDE' ENTERED AT 12:02:26 ON 28 MAR 2007

     FILE 'HCAPLUS' ENTERED AT 12:30:53 ON 28 MAR 2007

     FILE 'REGISTRY' ENTERED AT 12:32:12 ON 28 MAR 2007
L63           9 S L44 OR L45

=> d que l63
L32          12 SEA FILE=REGISTRY ABB=ON  PLU=ON  (K(L)CS(L)CE(L)CR(L)C
                O(L)NI(L)FE(L)BI(L)MO(L)O)/ELS
L44           7 SEA FILE=REGISTRY ABB=ON  PLU=ON  L32 AND P/ELS
L45           3 SEA FILE=REGISTRY ABB=ON  PLU=ON  L32 AND MG/ELS
L63           9 SEA FILE=REGISTRY ABB=ON  PLU=ON  L44 OR L45
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     (FILE 'HCAPLUS' ENTERED AT 12:32:24 ON 28 MAR 2007)
L67           7 S L66 AND L50

=> d que l67
L23      635119 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CATALYSTS+PFT,OLD,NT/C
                T
L32          12 SEA FILE=REGISTRY ABB=ON  PLU=ON  (K(L)CS(L)CE(L)CR(L)C
                O(L)NI(L)FE(L)BI(L)MO(L)O)/ELS
L37           6 SEA FILE=REGISTRY ABB=ON  PLU=ON  (RB OR NA OR LI OR
                TL)/ELS AND L32
L38          11 SEA FILE=REGISTRY ABB=ON  PLU=ON  (P OR SB OR TE OR B
                OR GE OR W OR CA OR MG OR LNTH/PG OR ACTN/PG)/ELS AND
                L32
L39           5 SEA FILE=REGISTRY ABB=ON  PLU=ON  L38 AND L37
L40          12 SEA FILE=REGISTRY ABB=ON  PLU=ON  L32 OR (L37 OR L38
                OR L39)
L41          10 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L40
L42           9 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L40/CAT
L44           7 SEA FILE=REGISTRY ABB=ON  PLU=ON  L32 AND P/ELS
L45           3 SEA FILE=REGISTRY ABB=ON  PLU=ON  L32 AND MG/ELS
L46       29606 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ACRYLONITRILE+PFT,OLD,
                NT/CT
L47        5762 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L46 AND L23
L48           6 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L41 AND L47
L49          10 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L48 OR L42
L50             QUE  ABB=ON  PLU=ON  PY<2003 OR PRY<2003 OR AY<2003 OR
                MY<2003 OR REVIEW/DT
L63           9 SEA FILE=REGISTRY ABB=ON  PLU=ON  L44 OR L45
L64           7 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L63/CAT
L66          10 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L64 OR L49
L67           7 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L66 AND L50


=> d 167 1-7 ibib ed abs hitstr hitind

L67  ANSWER 1 OF 7  HCAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:         2003:305713  HCAPLUS  Full-text
DOCUMENT NUMBER:          138:327217
TITLE:                    Production method of ammoxidation catalyst
INVENTOR(S):              Miyaki, Kenichi; Yanagida, Motoo; Mori, Kunio
PATENT ASSIGNEE(S):       Daiya Nitrics K. K., Japan
SOURCE:                   Jpn. Kokai Tokkyo Koho, 11 pp.
                          CODEN: JKXXAF
DOCUMENT TYPE:            Patent
LANGUAGE:                 Japanese
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.           KIND   DATE      APPLICATION NO.          DATE
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     --------
     JP 2003117397         A     20030422  JP 2001-314054
                                                                   2001
                                                                   1011
                                                 <--
     WO 2003033139         A1    20030424  WO 2002-JP9832
                                                                   2002
                                                                   0925
                                                 <--
         W:  CN, KR, RO, US
         RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,
             IE, IT, LU, MC, NL, PT, SE, SK, TR
     EP 1452231            A1    20040901  EP 2002-779893
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2002
0925
<--

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK

CN 1568223 A 20050119 CN 2002-819966
2002
0925
<--

US 2004248734 A1 20041209 US 2004-490219
2004
0401
<--

PRIORITY APPLN. INFO.: JP 2001-314054 A
2001
1011
<--

WO 2002-JP9832 W
2002
0925
<--

ED Entered STN: 22 Apr 2003

AB The invention refers to a production method for an ammoxidn. catalyst, suitable for producing acrylonitrile from propylene. The catalyst comprises (1) Mo, (2) Bi, and (3) at least one element selected from Ni, Co, Zn, Mg, Mn or Cu and (4) at least one element selected from La, Ce, Pr or Nd, and during the manufacture of the catalyst the raw materials for the 4th component is added to a solution containing raw materials for the first three components.

IT **512173-57-8**
RL: **CAT (Catalyst use)**; DEV (Device component use); USES (Uses)
(production method of ammoxidn. catalyst)

RN 512173-57-8 HCAPLUS

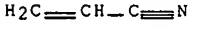
CN Bismuth cerium cesium chromium cobalt iron magnesium molybdenum nickel potassium samarium silicon tellurium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Te	x	13494-80-9
Bi	x	7440-69-9
Co	x	7440-48-4
Cr	x	7440-47-3
Cs	x	7440-46-2
Ce	x	7440-45-1
Si	x	7440-21-3
Sm	x	7440-19-9
K	x	7440-09-7
Ni	x	7440-02-0
Mo	x	7439-98-7
Mg	x	7439-95-4
Fe	x	7439-89-6

IT **107-13-1P**, Acrylonitrile, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(production method of ammoxidn. catalyst)

RN 107-13-1 HCAPLUS

CN 2-Propenenitrile (CA INDEX NAME)



IC ICM B01J027-192
ICS B01J023-88; B01J027-057; B01J037-04; B01J037-08; C07B061-00; C07C253-26; C07C255-08
CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 21, 35
IT **Ammoxidation catalysts**
(production method of ammoxidn. catalyst)
IT 512173-53-4 512173-54-5 512173-55-6 512173-56-7
512173-57-8 512173-58-9 512173-59-0 512173-60-3
512173-61-4 512173-62-5
RL: **CAT (Catalyst use)**; DEV (Device component use); USES (Uses)
(production method of ammoxidn. catalyst)
IT **107-13-1P**, Acrylonitrile, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(production method of ammoxidn. catalyst)

L67 ANSWER 2 OF 7 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:610508 HCAPLUS Full-text
DOCUMENT NUMBER: 137:155271
TITLE: Fluidized bed catalyst for ammoxidation of propylene into acrylonitrile
INVENTOR(S): Xie, Guohuang; Chen, Xin; Wu, Lianghua
PATENT ASSIGNEE(S): China Petrochemical Group Corp., Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 8 pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1310046	A	20010829	CN 2000-111715	2000 0224 <--

PRIORITY APPLN. INFO.: CN 2000-111715 2000 0224 <--

ED Entered STN: 16 Aug 2002
AB The catalyst comprises a silica support and a mixed oxide AaBbCcGedMneWfFegBihMoiOx, where A = Li, Na, K, Rb and Cs; B = Co, Ni, Cr, Ca, Mg, La, Ce and V; C = B, P and As; a = 0.01-1.5, b = 0.1-12, c = 0.1-0.6, d = 0.01-2.0, e = 0.01-2.5, f = 0.05- 1.5, g = 0.1-4, h = 0.2-2.5, i = 12-14.5, and x = number that balances the valency. The use of the catalyst can enhance the conversion of propylene and acrylonitrile yield. K0.1Cs0.07P0.02Ni5.6Cr0.35Ce0. 35Mg1.2Ge0.05Mn0.2W0.15Fe2.0Bi0.75Mo13.0Ox was prepared and used for ammoxidn. of propylene into acrylonitrile with yield 80.3%.
IT **107-13-1P**, Acrylonitrile, preparation **446036-48-2P**
446036-50-6P
RL: IMF (Industrial manufacture); PREP (Preparation)
(fluidized bed catalyst for ammoxidn. of propylene into acrylonitrile)
RN 107-13-1 HCAPLUS
CN 2-Propenenitrile (CA INDEX NAME)

RN 446036-48-2 HCAPLUS
CN Bismuth cerium cesium chromium cobalt germanium iron magnesium manganese molybdenum nickel potassium tungsten oxide phosphate (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
O4P	x	14265-44-2
Bi	x	7440-69-9
Ge	x	7440-56-4
Co	x	7440-48-4
Cr	x	7440-47-3
Cs	x	7440-46-2
Ce	x	7440-45-1
W	x	7440-33-7
K	x	7440-09-7
Ni	x	7440-02-0
Mo	x	7439-98-7
Mn	x	7439-96-5
Mg	x	7439-95-4
Fe	x	7439-89-6

RN 446036-50-6 HCAPLUS
CN Bismuth cerium cesium chromium cobalt germanium iron magnesium manganese molybdenum nickel potassium rubidium tungsten oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Bi	x	7440-69-9
Ge	x	7440-56-4
Co	x	7440-48-4
Cr	x	7440-47-3
Cs	x	7440-46-2
Ce	x	7440-45-1
W	x	7440-33-7
Rb	x	7440-17-7
K	x	7440-09-7
Ni	x	7440-02-0
Mo	x	7439-98-7
Mn	x	7439-96-5
Mg	x	7439-95-4
Fe	x	7439-89-6

IC ICM B01J027-192
ICS B01J023-84; B01J023-835; C07C255-08
CC 35-2 (Chemistry of Synthetic High Polymers)
IT **Ammoxidation catalysts**
(mixed oxide; fluidized bed catalyst for ammoxidn. of propylene into acrylonitrile)
IT **107-13-1P**, Acrylonitrile, preparation 446036-44-8P 446036-45-9P 446036-46-0P 446036-47-1P **446036-48-2P** 446036-49-3P **446036-50-6P**
RL: IMF (Industrial manufacture); PREP (Preparation)
(fluidized bed catalyst for ammoxidn. of propylene into acrylonitrile)

L67 ANSWER 3 OF 7 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:246980 HCAPLUS Full-text
DOCUMENT NUMBER: 136:265297
TITLE: Manufacture of hydrogen cyanide by

ammoxidation with fluidized-bed catalysts
INVENTOR(S): Miyaki, Kenichi; Mori, Kunio
PATENT ASSIGNEE(S): Mitsubishi Rayon Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002097017	A	20020402	JP 2000-286452	2000 0921
			<--	
JP 3872269	B2	20070124		

PRIORITY APPLN. INFO.: JP 2000-286452 2000 0921
<--

ED Entered STN: 02 Apr 2002

AB HCN is manufactured by ammoxidn. of MeOH with fluidized-bed catalysts having compns.: Mo10BiaFebSbcNidCreFfGgM1hKkM2mXxYyOi(SiO2)j (F = Y, La, Ce, Pr, Nd, Sm, Al, and/or Ga; G = Mg, Ca, Sr, Ba, Mn, Co, Cu, Zn, and/or Cd; M1 = Ti, Zr, V, Nb, Ta, W, Ge, Sn, and/or Pb; M2 = Ru, Rh, Pd, Re, Os, Ir, Pt, and/or Ag; X = P, B, and/or Te; Y = Li, Na, Rb, Cs, and/or Tl; a = 0.2-1.5, b = 0.7-15, c = 0-20, d = 3-8, e = 0.1-2.5, f = 0.1-1.5, g = 0-5, h = 0-3, k = 0.05-1.5, m = 0-1, x = 0-3, y = 0-1, i = atomic ratio of O, j = 20-200; 20/p = 0.8-1; p = sum of (valence) + (atomic ratio) of Bi, Fe, Ni, Cr, K, F, G, and Y). Preferably, Mo compds. are added during the reaction. The catalysts have stable structures and give HCN in high yields.

IT **405233-88-7P**
RL: **CAT (Catalyst use)**; IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(catalyst component; manufacture of HCN by ammoxidn. of MeOH with fluidized-bed catalysts)
RN 405233-88-7 HCAPLUS
CN Antimony bismuth cerium cesium chromium cobalt iron molybdenum nickel phosphorus potassium ruthenium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
P	x	7723-14-0
Bi	x	7440-69-9
Co	x	7440-48-4
Cr	x	7440-47-3
Cs	x	7440-46-2
Ce	x	7440-45-1
Sb	x	7440-36-0
Ru	x	7440-18-8
K	x	7440-09-7
Ni	x	7440-02-0
Mo	x	7439-98-7
Fe	x	7439-89-6

IC ICM C01C003-02
ICS C01C003-02; B01J023-88; B01J027-057; B01J027-192
CC 49-2 (Industrial Inorganic Chemicals)
Section cross-reference(s): 67
IT 156260-89-8P, Bismuth cerium chromium cobalt iron molybdenum nickel phosphorus potassium oxide 405220-76-0P 405220-77-1P 405220-78-2P 405220-79-3P 405233-78-5P 405233-79-6P 405233-86-5P 405233-87-6P **405233-88-7P**
RL: **CAT (Catalyst use)**; IMF (Industrial manufacture);

PREP (Preparation); USES (Uses)
(catalyst component; manufacture of HCN by ammoxidn. of MeOH with fluidized-bed catalysts)

L67 ANSWER 4 OF 7 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:244582 HCAPLUS Full-text
DOCUMENT NUMBER: 136:265296
TITLE: Manufacture of hydrogen cyanide by ammoxidation with fluidized-bed catalysts
INVENTOR(S): Miyaki, Kenichi; Mori, Kunio
PATENT ASSIGNEE(S): Mitsubishi Rayon Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002097016	A	20020402	JP 2000-286450	2000 0921 <--
JP 3872268	B2	20070124		

PRIORITY APPLN. INFO.: JP 2000-286450 2000 0921 <--

ED Entered STN: 02 Apr 2002
AB HCN is manufactured by ammoxidn. of MeOH with fluidized-bed catalysts having the compns.: FeaSbbMocBidKeFfGgMhQqRrTtOx(SiO2)y (F = Mg, Ca, Sr, Ba, Mn, Co, Ni, Cu, Ag, Zn, and/or Cd; G = Cr, Al, Ga, and/or In; M = Y, La, Ce, Pr, Nd, and/or Sm; Q = Ti, Zr, V, Nb, Ta, W, Ge, Sn, and/or Pb; R = Li, Na, Rb, Cs, and/or Tl; T = B, P, and/or Te; when a = 10, then b = 5-60, c = 5-50, d = 0.15-5, e = 0.1-5, f = 2-35, g = 0.05-10, h = 0.05-10, h/c >0.02, q = 0-10, r = 0-5, t = 0-5, x = atomic ratio of O, and y = 20-500; containing Fe antimonate as a crystal phase). Preferably, Mo compds. are added during the reaction. The catalysts have stable structures and give HCN in high yields.
IT **405233-94-5P**
RL: **CAT (Catalyst use)**; IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(catalyst component; manufacture of HCN by ammoxidn. of MeOH with fluidized-bed catalysts)
RN 405233-94-5 HCAPLUS
CN Antimony bismuth cerium cesium chromium cobalt iron molybdenum nickel phosphorus potassium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
P	x	7723-14-0
Bi	x	7440-69-9
Co	x	7440-48-4
Cr	x	7440-47-3
Cs	x	7440-46-2
Ce	x	7440-45-1
Sb	x	7440-36-0
K	x	7440-09-7
Ni	x	7440-02-0
Mo	x	7439-98-7
Fe	x	7439-89-6

IC ICM C01C003-02
ICS C01C003-02; B01J023-88; B01J027-057; B01J027-192
CC 49-2 (Industrial Inorganic Chemicals)

Section cross-reference(s): 67

IT 15600-71-2P, Iron antimonate (FeSbO4) 405233-71-8P
405233-72-9P 405233-73-0P 405233-74-1P 405233-75-2P
405233-76-3P 405233-77-4P 405233-78-5P 405233-79-6P
405233-94-5P
RL: **CAT (Catalyst use)**; IMF (Industrial manufacture);
PREP (Preparation); USES (Uses)
(catalyst component; manufacture of HCN by ammoxidn. of MeOH with fluidized-bed catalysts)

L67 ANSWER 5 OF 7 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:244581 HCAPLUS Full-text
DOCUMENT NUMBER: 136:265295
TITLE: Manufacture of hydrogen cyanide by ammoxidation with fluidized-bed catalysts
INVENTOR(S): Miyaki, Kenichi; Mori, Kunio
PATENT ASSIGNEE(S): Mitsubishi Rayon Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002097015	A	20020402	JP 2000-286453	2000 0921
			<--	
JP 3872270	B2	20070124		
PRIORITY APPLN. INFO.:			JP 2000-286453	2000 0921
			<--	

ED Entered STN: 02 Apr 2002
AB HCN is manufactured by ammoxidn. of MeOH with fluidized-bed catalysts having compns.: (FeSba)bMo10BicFedKkM1mM2nGgQqRrTtOx(SiO2)y [(FeSba) indicates Sb and Fe forming Fe antimonate; M1 = Mg, Ca, Sr, Ba, Mn, Co, Ni, Cu, Zn, and/or Cd; M2 = Cr, Y, La, Ce, Pr, Nd, Sm, Al, Ga, and/or In; G = Ru, Rh, Pd, Re, Os, Ir, Pt, and/or Ag; Q = Ti, Zr, V, Nb, Ta, W, Ge, Sn, Pb, and/or Sb; R = B, P, and/or Te; T = Li, Na, Rb, Cs, and/or Tl; a = 0.8-2, b = 0.5-20, c = 0.1-2, d = 0.3-3, k = 0.05-2, m = 3-8, n = 0.1-3, g = 0-0.5, q = 0-3, r = 0-3, t = 0-1, x = atomic ratio of O, y = 20-200; 20/p = 0.8-1; p = sum of (valence) + (atomic ratio) of Bi, Fe, K, M, N, and T]. Preferably, Mo compds. are added during the reaction. The catalysts have stable structures and give HCN in high yields.
IT **405220-82-8P**
RL: **CAT (Catalyst use)**; IMF (Industrial manufacture);
PREP (Preparation); USES (Uses)
(catalyst component; manufacture of HCN by ammoxidn. of MeOH with fluidized-bed catalysts)
RN 405220-82-8 HCAPLUS
CN Bismuth cerium cesium chromium cobalt iron molybdenum nickel phosphorus potassium ruthenium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
P	x	7723-14-0
Bi	x	7440-69-9
Co	x	7440-48-4
Cr	x	7440-47-3
Cs	x	7440-46-2
Ce	x	7440-45-1
Ru	x	7440-18-8

K		x	7440-09-7
Ni		x	7440-02-0
Mo		x	7439-98-7
Fe		x	7439-89-6

IC ICM C01C003-02
ICS C01C003-02; B01J023-88; B01J027-057; B01J027-199; C01B033-20; B01J008-24
CC 49-2 (Industrial Inorganic Chemicals)
Section cross-reference(s): 67
IT 15600-71-2P, Iron antimonate (FeSbO4) 156260-89-8P, Bismuth cerium chromium cobalt iron molybdenum nickel phosphorus potassium oxide 405220-76-0P 405220-77-1P 405220-78-2P 405220-79-3P 405220-80-6P 405220-81-7P **405220-82-8P** 405220-83-9P 405220-84-0P
RL: **CAT (Catalyst use)**; IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(catalyst component; manufacture of HCN by ammoxidn. of MeOH with fluidized-bed catalysts)

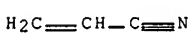
L67 ANSWER 6 OF 7 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:288839 HCAPLUS Full-text
DOCUMENT NUMBER: 134:311535
TITLE: Catalysts for ammoxidation of propylene for preparation of acrylonitrile with high yield
INVENTOR(S): Mori, Kunio; Sasaki, Yutaka; Miyaki, Kenichi; Watanabe, Hirokazu
PATENT ASSIGNEE(S): Mitsubishi Rayon Co., Ltd., Japan; Dia-Nitrix Co., Ltd.
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001114740	A	20010424	JP 1999-295914	1999 1018
			<--	
JP 3819192	B2	20060906		
WO 2001028986	A1	20010426	WO 2000-JP7194	2000 1017
			<--	
W: CN, KR, RO, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 1223164	A1	20020717	EP 2000-966538	2000 1017
			<--	
EP 1223164	B1	20060913		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, RO, CY				
RO 121265	B1	20070228	RO 2002-471	2000 1017
			<--	
US 6653496	B1	20031125	US 2002-110061	2002 0408
			<--	

PRIORITY APPLN. INFO.: JP 1999-295914 A

1999
1018
<--
WO 2000-JP7194 W
2000
1017
<--

ED Entered STN: 24 Apr 2001
AB The ammoxidn. uses a fluidized bed catalyst comprising Mo, Bi, Fe, K, M components (e.g., Mg, Ca, Ba, etc.), N components (e.g., Cr, Y, Ce, etc.), and silica as essential components at a specific Mo ratio and containing Fe antimonate being present as a crystalline phase. The catalysts are stable for a long period of time.
IT **107-13-1P**, Acrylonitrile, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(ammoxidn. catalysts for propylene for preparation of acrylonitrile with high yield)
RN 107-13-1 HCAPLUS
CN 2-Propenenitrile (CA INDEX NAME)



IT **335233-39-1**
RL: **CAT (Catalyst use)**; USES (Uses)
(silica-supported catalysts; ammoxidn. catalysts for propylene for preparation of acrylonitrile with high yield)
RN 335233-39-1 HCAPLUS
CN Antimony bismuth cerium cesium chromium cobalt iron molybdenum nickel potassium ruthenium oxide phosphate (Sb1.7Bi0.5Ce0.5Cs0.05Cr2Co1.5Fe2.5Mo10Ni4K0.2Ru0.05O47.47(PO4)0.3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	47.47	17778-80-2
O4P	0.3	14265-44-2
Bi	0.5	7440-69-9
Co	1.5	7440-48-4
Cr	2	7440-47-3
Cs	0.05	7440-46-2
Ce	0.5	7440-45-1
Sb	1.7	7440-36-0
Ru	0.05	7440-18-8
K	0.2	7440-09-7
Ni	4	7440-02-0
Mo	10	7439-98-7
Fe	2.5	7439-89-6

IC ICM C07C253-26
ICS B01J023-88; B01J023-89; B01J027-057; B01J027-199; C07C255-08; C07B061-00
CC 35-2 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 67
IT Ammoxidation
Ammoxidation catalysts
(ammoxidn. catalysts for propylene for preparation of acrylonitrile with high yield)
IT **107-13-1P**, Acrylonitrile, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(ammoxidn. catalysts for propylene for preparation of acrylonitrile with high yield)
IT 335233-33-5 335233-34-6 335233-35-7 335233-36-8

335233-37-9 335233-38-0 **335233-39-1** 335233-40-4
335233-42-6
RL: **CAT (Catalyst use)**; USES (Uses)
(silica-supported catalysts; ammoxidn. catalysts for propylene for preparation of acrylonitrile with high yield)

L67 ANSWER 7 OF 7 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:394383 HCAPLUS Full-text
DOCUMENT NUMBER: 129:68144
TITLE: Catalysts for ammoxidation of propylene to acrylonitrile
INVENTOR(S): Chen, Shin; Wu, Lianfa
PATENT ASSIGNEE(S): Chinese Petrochemical Industries Co., Ltd., Peop. Rep. China; Chinese Petrochemical Industries, Shanghai Petrochemical Laboratory
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10156185	A	19980616	JP 1997-212289 <--	19970806
JP 3896194	B2	20070322		
CN 1172691	A	19980211	CN 1996-116453 <--	19960806
CN 1060410	B	20010110		
CN 1172689	A	19980211	CN 1996-116454 <--	19960806
CN 1059607	B	20001220		
CN 1172690	A	19980211	CN 1996-116455 <--	19960806
CN 1059608	B	20001220		
US 5834394	A	19981110	US 1997-904914 <--	19970801

PRIORITY APPLN. INFO.:
CN 1996-116453 A 19960806 <--
CN 1996-116454 A 19960806 <--
CN 1996-116455 A 19960806 <--

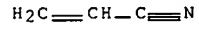
ED Entered STN: 27 Jun 1998
AB Title catalysts for fluidized-bed reaction comprise (A) AaBbCcDdNae FefBigMohOx (A = K, Rb, Cs, Tl, or their mixture; B = Mn, Mg, Sr, Ca, Ba, rare earth metals except Pr and Nd, or their mixture; C = P, As, B, Sb, Cr, W, V, or their mixture; D = Ni and/or Co, optionally Li, Pr and/or Nd, except simple combination of Co and Ni; a = 0.001-2.0, b = 0-4.5, c = 0.01-8.0, d = 0.01-22.0, e = 0.01-0.7, f = 0.01-8.0, g = 0.01-6.0, h = 8-16,

x = number of oxygen to satisfy valence of other elements) and (B) SiO2 as a support. Thus, a mixture of 20% KNO3 9.0, 20% RbNO3 17.0, 20% CsNO3 7.0, and 20% NaNO3 18.5 g was treated with 1250 g of ammonia-stabilized SiO2 sol, 4.2 g 85% H3PO4, a mixture of 19.7 g ammonium tungstate in 100 mL 5% NH4OH and 374.7 g ammonium molybdate in 300 mL H2O, and a mixture of Bi(NO3)3 78.1, Mn(NO3)2 51.9, Fe(NO3)3 149.3, Co(NO3)2 63.9, Ni(NO3)2 215.0, Cr(NO3)3 4.4, and Pr(NO3)3 23.9 g in 70 mL H2O. The obtained paste mixture was spray-dried and baked at 670° for 1 h to give a catalyst comprising Mo14.5W0.5Bi1.1Fe2.5Co1.5Ni5.0Mn1.0Cr0.3P0.25Na0.3K0.1Rb0.1Cs0.05P r1.0 + 50% SiO2. A 1/1.2/9.8 mol mixture of propylene/NH3/air was passed through a fluidized-bed reactor which contained the catalyst at 435° and 0.08 MPa with WWH 0.045, resulting in propylene conversion 98.5%, acrylonitrile selectivity 83.7%, and once-through acrylonitrile yield 82.4%.

IT **208931-76-4P**
RL: **CAT (Catalyst use)**; IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(catalysts for ammoxidn. of propylene to acrylonitrile)
RN 208931-76-4 HCAPLUS
CN Bismuth cerium cesium chromium cobalt iron lithium manganese molybdenum nickel potassium rubidium sodium tungsten oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Bi	x	7440-69-9
Co	x	7440-48-4
Cr	x	7440-47-3
Cs	x	7440-46-2
Ce	x	7440-45-1
W	x	7440-33-7
Na	x	7440-23-5
Rb	x	7440-17-7
K	x	7440-09-7
Ni	x	7440-02-0
Mo	x	7439-98-7
Mn	x	7439-96-5
Li	x	7439-93-2
Fe	x	7439-89-6

IT **107-13-1P**, Acrylonitrile, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(catalysts for ammoxidn. of propylene to acrylonitrile)
RN 107-13-1 HCAPLUS
CN 2-Propenenitrile (CA INDEX NAME)



IC ICM B01J027-192
ICS B01J023-88; C07C253-26; C07C255-08; C07B061-00
CC 35-2 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 67
IT **Ammoxidation catalysts**
(catalysts for ammoxidn. of propylene to acrylonitrile)
IT 208931-66-2P 208931-67-3P 208931-68-4P 208931-69-5P
208931-70-8P 208931-71-9P 208931-72-0P 208931-73-1P
208931-74-2P 208931-75-3P **208931-76-4P** 208931-77-5P
208931-78-6P 208931-79-7P 208931-80-0P 208931-81-1P
208931-82-2P 208931-83-3P
RL: **CAT (Catalyst use)**; IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(catalysts for ammoxidn. of propylene to acrylonitrile)

IT **107-13-1P**, Acrylonitrile, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(catalysts for ammoxidn. of propylene to acrylonitrile)

SEARCH HISTORY

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     (FILE 'HOME' ENTERED AT 10:09:20 ON 28 MAR 2007)

     FILE 'HCAPLUS' ENTERED AT 10:09:26 ON 28 MAR 2007
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L1            1 SEA ABB=ON  PLU=ON  US20040110978/PN
                D ALL
                SEL RN

     FILE 'REGISTRY' ENTERED AT 10:11:22 ON 28 MAR 2007
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                1314-23-4/BI OR 1344-28-1/BI OR 13463-67-7/BI OR
                13494-80-9/BI OR 7439-89-6/BI OR 7439-93-2/BI OR
                7439-95-4/BI OR 7439-98-7/BI OR 7440-02-0/BI OR
                7440-09-7/BI OR 7440-17-7/BI OR 7440-23-5/BI OR
                7440-28-0/BI OR 7440-33-7/BI OR 7440-36-0/BI OR
                7440-42-8/BI OR 7440-45-1/BI OR 7440-46-2/BI OR
                7440-47-3/BI OR 7440-48-4/BI OR 7440-56-4/BI OR
                7440-66-6/BI OR 7440-69-9/BI OR 7440-70-2/BI OR
                7631-86-9/BI OR 7664-41-7/BI OR 7723-14-0/BI OR
                7782-44-7/BI)
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     FILE 'HCAPLUS' ENTERED AT 10:13:23 ON 28 MAR 2007
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                E US2002-717846/APPS
                E US2003-717846/APPS
L3            1 SEA ABB=ON  PLU=ON  US2003-717846/APPS
                D ALL
L4            1 SEA ABB=ON  PLU=ON  L1 AND L3
                DEL SELECT
                SEL AU
L5           66 SEA ABB=ON  PLU=ON  ("JEVNE, STEPHEN C."/AU OR
                "PAPARIZOS, CHRISTOS"/AU OR "SEELY, MICHAEL J."/AU)
L6           59 SEA ABB=ON  PLU=ON  L5 AND CATAL?
                E ACRYLONITRILE/CT
L7         1183 SEA ABB=ON  PLU=ON  "ACRYLONITRILE POLYMERS (INCLUDING
                COPOLYMERS)"/CT
L8            0 SEA ABB=ON  PLU=ON  L6 AND L7
L9            0 SEA ABB=ON  PLU=ON  L5 AND L7

     FILE 'STNGUIDE' ENTERED AT 10:18:31 ON 28 MAR 2007

     FILE 'ZCAPLUS' ENTERED AT 10:19:18 ON 28 MAR 2007
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L10             QUE ABB=ON  PLU=ON  JEVNE S?/AU
                E SEELY M/AU
L11             QUE ABB=ON  PLU=ON  SEELY M?/AU
                E STANDARD OIL/CO
L12             QUE ABB=ON  PLU=ON  "STANDARD OIL CO?"/PA,CS,SO,CO
                E INNOVENE/CO
                E INNOVENE USA/CO
L13             QUE ABB=ON  PLU=ON  "INNOVENE USA?"/PA,CS,SO,CO

     FILE 'HCAPLUS' ENTERED AT 10:24:36 ON 28 MAR 2007

     FILE 'ZCAPLUS' ENTERED AT 10:25:40 ON 28 MAR 2007
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                E PAPARIZOS C/AU
L14             QUE ABB=ON  PLU=ON  PAPARIZOS C?/AU
L15             QUE ABB=ON  PLU=ON  L10 AND L11 AND L14
L16             QUE ABB=ON  PLU=ON  (L10 OR L11) OR L14
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L17             QUE ABB=ON  PLU=ON  L16 AND ((L12 OR L13))
L18             QUE ABB=ON  PLU=ON  (L12 OR L13)

     FILE 'HCAPLUS' ENTERED AT 10:28:42 ON 28 MAR 2007
L19           2 SEA ABB=ON  PLU=ON  L10 AND L11 AND L14
                D SCAN
                DEL SEL
                SEL RN

     FILE 'REGISTRY' ENTERED AT 10:30:23 ON 28 MAR 2007
L20          49 SEA ABB=ON  PLU=ON  (107-13-1/BI OR 115-07-1/BI OR
                7631-86-9/BI OR 10026-22-9/BI OR 10035-06-0/BI OR
                12027-67-7/BI OR 12028-48-7/BI OR 13126-12-0/BI OR
                1314-23-4/BI OR 1333-82-0/BI OR 1344-28-1/BI OR
                13446-18-9/BI OR 13463-67-7/BI OR 13478-00-7/BI OR
                13494-80-9/BI OR 16774-21-3/BI OR 697309-79-8/BI OR
                697309-81-2/BI OR 697309-83-4/BI OR 697309-85-6/BI OR
                697309-87-8/BI OR 697309-89-0/BI OR 7439-89-6/BI OR
                7439-93-2/BI OR 7439-95-4/BI OR 7439-98-7/BI OR
                7440-02-0/BI OR 7440-09-7/BI OR 7440-17-7/BI OR
                7440-23-5/BI OR 7440-28-0/BI OR 7440-33-7/BI OR
                7440-36-0/BI OR 7440-42-8/BI OR 7440-45-1/BI OR
                7440-46-2/BI OR 7440-47-3/BI OR 7440-48-4/BI OR
                7440-56-4/BI OR 7440-66-6/BI OR 7440-69-9/BI OR
                7440-70-2/BI OR 7631-99-4/BI OR 7664-38-2/BI OR
                7664-41-7/BI OR 7723-14-0/BI OR 7782-44-7/BI OR
                7782-61-8/BI OR 7790-69-4/BI)
L21          49 SEA ABB=ON  PLU=ON  L2 OR L20
                D SCAN

     FILE 'HCAPLUS' ENTERED AT 10:31:26 ON 28 MAR 2007
L22          45 SEA ABB=ON  PLU=ON  L16 AND ((L12 OR L13))
                E CATALYSTS/CT
                E E3+ALL
L23      635119 SEA ABB=ON  PLU=ON  CATALYSTS+PFT,OLD,NT/CT
L24          35 SEA ABB=ON  PLU=ON  L22 AND L23
                D SCAN L19
L25           0 SEA ABB=ON  PLU=ON  L24 AND L7

     FILE 'REGISTRY' ENTERED AT 10:34:59 ON 28 MAR 2007
L26           1 SEA ABB=ON  PLU=ON  107-13-1/RN
                E ACRYLONITRILE/PCT
                E ACRYL/PCT
                E AC/PCT
                D SCAN L26
                D L26 PCT
                D CN

     FILE 'HCAPLUS' ENTERED AT 10:37:26 ON 28 MAR 2007
L27       98560 SEA ABB=ON  PLU=ON  L26 OR ACRYLONITRILE OR ACRYLON
L28          14 SEA ABB=ON  PLU=ON  L24 AND L27
                D SCAN
                DEL SEL
                SEL RN

     FILE 'REGISTRY' ENTERED AT 10:45:18 ON 28 MAR 2007
L29         147 SEA ABB=ON  PLU=ON  (107-13-1/BI OR 115-07-1/BI OR
                115-11-7/BI OR 126-98-7/BI OR 7664-41-7/BI OR 7789-18-6
                /BI OR 10035-06-0/BI OR 10377-66-9/BI OR 11118-57-3/BI
                OR 1333-82-0/BI OR 13478-00-7/BI OR 13494-80-9/BI OR
                7439-95-4/BI OR 7439-96-5/BI OR 7440-03-1/BI OR
                7440-31-5/BI OR 7440-33-7/BI OR 7440-42-8/BI OR
                7440-45-1/BI OR 7440-56-4/BI OR 7440-62-2/BI OR
                7757-79-1/BI OR 10026-22-9/BI OR 11098-99-0/BI OR
                11099-02-8/BI OR 11104-61-3/BI OR 12027-67-7/BI OR
                12054-85-2/BI OR 12136-45-7/BI OR 1303-86-2/BI OR
                1304-76-3/BI OR 1314-35-8/BI OR 1332-37-2/BI OR
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                13446-18-9/BI OR 199326-42-6/BI OR 199326-43-7/BI OR
                199326-45-9/BI OR 199326-46-0/BI OR 20281-00-9/BI OR
                56780-28-0/BI OR 74-98-6/BI OR 7429-90-5/BI OR
                7439-89-6/BI OR 7439-98-7/BI OR 7440-28-0/BI OR
                7440-32-6/BI OR 7440-36-0/BI OR 7440-38-2/BI OR
                7440-43-9/BI OR 7440-47-3/BI OR 7440-50-8/BI OR
                7440-66-6/BI OR 7440-67-7/BI OR 7440-69-9/BI OR
                7440-70-2/BI OR 7664-38-2/BI OR 7723-14-0/BI OR
                7782-61-8/BI OR 10043-35-3/BI OR 10141-05-6/BI OR
                10361-44-1/BI OR 10377-60-3/BI OR 10421-48-4/BI OR
                107-02-8/BI OR 11099-11-9/BI OR 11104-44-2/BI OR
                11129-60-5/BI OR 12028-48-7/BI OR 12627-00-8/BI OR
                12651-21-7/BI OR 12737-86-9/BI OR 12777-38-7/BI OR
                1305-78-8/BI OR 1306-19-0/BI OR 1307-96-6/BI OR
                1309-37-1/BI OR 1309-48-4/BI OR 1309-64-4/BI OR
                1310-53-8/BI OR 1313-13-9/BI OR 1313-27-5/BI OR
                1313-99-1/BI OR 13138-45-9/BI OR 1314-13-2/BI OR
                1314-23-4/BI OR 1314-56-3/BI OR 1314-60-9/BI OR
                1327-33-9/BI OR 1332-29-2/BI OR 1344-28-1/BI OR
                152325-79-6/BI OR 152325-80-9/BI OR 152325-81-0/BI OR
                152325-82-1/BI OR 152325-83-2/BI OR 155948-76-8/BI OR
                155948-78-0/BI OR 156260-89-8/BI OR 156260-90-1/BI OR
                167258-26-6/BI OR 167258-29-9/BI OR 167258-30-2/BI OR
                167258-31-3/BI OR 167258-32-4/BI OR 167258-33-5/BI OR
                167258-34-6/BI OR 167258-35-7/BI OR 199326-44
L30         160 SEA ABB=ON  PLU=ON  L21 OR L29

    FILE 'HCAPLUS' ENTERED AT 10:47:17 ON 28 MAR 2007
                SAV L28 SAC846HCPIN/A

    FILE 'REGISTRY' ENTERED AT 10:48:03 ON 28 MAR 2007
L31           0 SEA ABB=ON  PLU=ON  (K(L)CS(L)CE(L)CR(L)CO(L)NI(L)FE(L)
                BI(L)MO(L)O)/ELS(L)10/ELC.SUB
L32          12 SEA ABB=ON  PLU=ON  (K(L)CS(L)CE(L)CR(L)CO(L)NI(L)FE(L)
                BI(L)MO(L)O)/ELS
                D SCAN
L33           0 SEA ABB=ON  PLU=ON  L32 AND L30
L34          31 SEA ABB=ON  PLU=ON  L30 AND MO
                D SCAN
L35          38 SEA ABB=ON  PLU=ON  L30 AND TIS/CI
                D SCAN
                E A/CI
L36           0 SEA ABB=ON  PLU=ON  L30 AND AYS/CI
L37           6 SEA ABB=ON  PLU=ON  (RB OR NA OR LI OR TL)/ELS AND L32

                D SCAN
L38          11 SEA ABB=ON  PLU=ON  (P OR SB OR TE OR B OR GE OR W OR
                CA OR MG OR LNTH/PG OR ACTN/PG)/ELS AND L32
                D SCAN
L39           5 SEA ABB=ON  PLU=ON  L38 AND L37
L40          12 SEA ABB=ON  PLU=ON  L32 OR (L37 OR L38 OR L39)

    FILE 'HCAPLUS' ENTERED AT 11:09:50 ON 28 MAR 2007
L41          10 SEA ABB=ON  PLU=ON  L40
L42           9 SEA ABB=ON  PLU=ON  L40/CAT
                D SCAN
L43           0 SEA ABB=ON  PLU=ON  L42 AND L16

    FILE 'HCAPLUS' ENTERED AT 11:12:27 ON 28 MAR 2007

    FILE 'REGISTRY' ENTERED AT 11:14:04 ON 28 MAR 2007
                D SCAN L2
L44           7 SEA ABB=ON  PLU=ON  L32 AND P/ELS
                D SCAN
                D QUE
L45           3 SEA ABB=ON  PLU=ON  L32 AND MG/ELS
                D SCAN
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                D SCAN L32

     FILE 'HCAPLUS' ENTERED AT 11:31:28 ON 28 MAR 2007
                D QUE L7
L46         29606 SEA ABB=ON  PLU=ON  ACRYLONITRILE+PFT,OLD,NT/CT
L47          5762 SEA ABB=ON  PLU=ON  L46 AND L23
L48             6 SEA ABB=ON  PLU=ON  L41 AND L47
                D SCAN
L49            10 SEA ABB=ON  PLU=ON  L48 OR L42
                D SCAN
                D 1-10 AU

     FILE 'STNGUIDE' ENTERED AT 11:41:49 ON 28 MAR 2007
L50             QUE ABB=ON  PLU=ON  PY<2003 OR PRY<2003 OR AY<2003 OR
                MY<2003 OR REVIEW/DT

     FILE 'HCAPLUS' ENTERED AT 11:43:48 ON 28 MAR 2007
L51             7 SEA ABB=ON  PLU=ON  L49 AND L50
                SAV L28 SAC846HCP/A

     FILE 'REGISTRY' ENTERED AT 11:44:52 ON 28 MAR 2007
                SAV L40 SAC846REG/A

     FILE 'HCAPLUS' ENTERED AT 11:45:40 ON 28 MAR 2007

     FILE 'RAPRA, WPIX' ENTERED AT 11:46:58 ON 28 MAR 2007
L52             2 SEA ABB=ON  PLU=ON  L15
                D 1-2 TI
L53             0 SEA ABB=ON  PLU=ON  L17
L54            72 SEA ABB=ON  PLU=ON  L16
L55            63 SEA ABB=ON  PLU=ON  L54 AND (CAT OR CATAL?)
L56             1 SEA ABB=ON  PLU=ON  L55 AND POLYMER?
                D TI
                D SCAN
L57            28 SEA ABB=ON  PLU=ON  L55 AND (?NITRIL? OR ACRYLON?)
                D 1-28 KWIC

     FILE 'STNGUIDE' ENTERED AT 11:51:28 ON 28 MAR 2007

     FILE 'WPIX' ENTERED AT 11:53:17 ON 28 MAR 2007
                D L57 1 ALL
                D QUE L28

     FILE 'HCAPLUS' ENTERED AT 11:56:38 ON 28 MAR 2007
L58            23 SEA ABB=ON  PLU=ON  L16 AND L23 AND L46
                D SCAN

     FILE 'STNGUIDE' ENTERED AT 11:57:11 ON 28 MAR 2007

     FILE 'HCAPLUS' ENTERED AT 11:58:44 ON 28 MAR 2007
L59            24 SEA ABB=ON  PLU=ON  L28 OR L58
L60            24 SEA ABB=ON  PLU=ON  L59 AND L50
                SAV L60 SAC846HCPIN/A

     FILE 'RAPRA, WPIX' ENTERED AT 12:00:11 ON 28 MAR 2007
                D QUE L57
L61            28 SEA ABB=ON  PLU=ON  L57 OR L52
L62            27 SEA ABB=ON  PLU=ON  L61 AND L50
                SAV L62 SAC846IN/A

     FILE 'STNGUIDE' ENTERED AT 12:02:26 ON 28 MAR 2007
                D QUE L51

     FILE 'HCAPLUS' ENTERED AT 12:30:53 ON 28 MAR 2007

     FILE 'REGISTRY' ENTERED AT 12:32:12 ON 28 MAR 2007
L63             9 SEA ABB=ON  PLU=ON  L44 OR L45
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     FILE 'HCAPLUS' ENTERED AT 12:32:24 ON 28 MAR 2007
L64            7 SEA ABB=ON  PLU=ON  L63/CAT
L65            7 SEA ABB=ON  PLU=ON  L64 AND L49
L66           10 SEA ABB=ON  PLU=ON  L64 OR L49
                 D QUE
                 D QUE L49
L67            7 SEA ABB=ON  PLU=ON  L66 AND L50
                 SAV L67 SAC846HCP/A

     FILE 'STNGUIDE' ENTERED AT 12:35:14 ON 28 MAR 2007
                 D QUE L60
                 D QUE L62
                 D QUE L60
                 D QUE L40
                 D QUE L60
                 D QUE L62

     FILE 'HCAPLUS, WPIX' ENTERED AT 12:40:15 ON 28 MAR 2007
L68           32 DUP REM L60 L62 (19 DUPLICATES REMOVED)
                      ANSWERS '1-24' FROM FILE HCAPLUS
                      ANSWERS '25-32' FROM FILE WPIX
                 D L68 1-32 IBIB AB
                 D QUE L40
                 D QUE L63
                 D QUE L67
                 D L67 1-7 IBIB ED ABS HITSTR HITIND
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